THE

Journal of the American Medical Association.

EDITED UNDER THE DIRECTION OF THE BOARD OF TRUSTEES.

PUBLISHED WEEKLY.

VOL. XIII. CHICAGO, OCTOBER 12, 1889. NO. 15.

ORIGINAL ARTICLES.

THE MANAGEMENT OF INFANTS UNDER A YEAR OLD, HYGIENIC, DIETETIC AND MEDICINAL.

Read in the Section of Diseases of Children at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY T. B. GREENLEY, M.D.,
OF WEST POINT, KY.

When we consider the great mortality of early childhood, compared to other periods of life, it induces inquiry on the part of sanitarians and clinicians as well as philantropists to endeavor to ascertain why it is so. In this country the death-rate of infants under one year is 60 per cent. of all who die under five years.[1] This is a very astounding fact and greatly calculated to arouse the sympathy and interest of all good men.

We know that this great mortality cannot be due altogether to natural or unavoidable causes, and therefore it behooves all workers in the medical profession as well as philanthropists to investigate the causes and, to the best of their ability, mitigate as much as possible such a dire calamity.

The question may arise in the minds of some, why is it that the young of the inferior animals are not subject, to some extent, to disease and death, like our infants? Can it be that they take better care of their young; that they have better ventilation; that the mammifera afford a better milk supply; that they better protect them from violence? Is civilization one of the factors detrimental to infant life? Can it be that we, more than the brute creation, violate the laws of health and cleanliness to such an extent as to procreate weakly and diseased offspring?

In discussing the subject before us I shall very cursorily speak of (1) the mortality, (2) the hygiene of infancy, (3) the proper food for infants, and (4) allude to some of the diseases incidental to that period of life. There can be but little doubt that a large proportion of infantile mortality is due to improper food, or, more correctly speaking, the want of proper food and unsanitary surroundings. A very large percentage of the mortality of infants during the first year occurs during the first month and greatly diminishes as age advances.

In France, out of 1,000,000 births over 29,000 die the first week, 22,000 the second week, and 22,000 in the sixteen days following, showing a mortality during the first month of 10.36. The annual rate of mortality among infants aged one month and under one year does not exceed 114.6 per 1,000, whereas among infants from birth to one year of age it is equal to 165.6.[2] In a supplement to the twenty-fifth report of the Registrar-General of England, 1838 to 1854, we find a table of annual rate of mortality, per cent., at each month under one year of age. During the first month 57 per cent. die; second month, 21.80 per cent.; third month, 15.70 per cent., and so on, rapidly decreasing as age increases. To those unfamiliar with such statistics this would seem astounding.

These statistics should remind us that there are causes producing such terrible mortality aside from disease. No doubt many children die in the first month from congenital causes due to disease of their parents; and, on the other hand, many die from neglect, starvation and exposure, and some from infanticide, while many die from the effects of improper food. Now, after considering the great mortality of infancy during the first year, the question is strongly presented to us, what can we do as sanitarians, philanthropists and medical men to modify or curtail it? Can we do anything? The solution to these questions consists mainly in endeavoring to ascertain the causes underlying such a terrible death-rate, and, to the best of our abilities, remove them.

We have already intimated that, to a great extent, improper food was a prominent factor in this respect, as well as exposure, neglect, starvation and infanticide. If we visit localities of the poor in large cities, where squalor, filth and degredation prevail over everything else in the way of cleanliness and good morals, we can to some extent account for the excessive death-rate of infants recorded in most of our large cities.

Now, what can be done to ameliorate the condition of the indigent poor who crowd the alleys and cellars of our cities? We are familiar, to a great extent, with the cause of a great deal of

[1] Vital statistics, U. S. census 1880.

[2] British Medical Journal, June 12, 1875.

poverty existing in such localities. I allude to the excessive use of alcoholic liquors. This is one cause we cannot remove outside of legislative enactments; for as long as politicians rule, spirituous liquors will be for sale, no difference what the consequences may be. But from a sanitary point of view a good deal might be accomplished in such localities. It should be the duty of the sanitary officers of cities to superintend the renovating and disinfecting of such unhealthy premises, and see that ventilation and cleanliness as far as possible are secured to the families of the poor.

As to the effects of inebriation, we have but little hope of amelioration; but when it is found that children are starving, neglected or abused in any way, they should be taken from their parents and placed in charitable institutions provided for their benefit. This part of the work of saving children would mainly fall to the lot of philanthropists. It has been said by some good people that it would be as well for mankind if the children of inebriates were all to die, so that we might soon be rid of drunkenness. This idea is expressed on the hypothesis that drunkenness is hereditary from parent to child. Regarding this as being true, of which there is little doubt, the proposition would not destroy the habit, as, unfortunately, many young men and boys acquire it from force of association and imitation. The idea may have originated from the theory of scientists that it would be in accordance with the law of survival of the fittest.

There is another cause in force which destroys the lives of many infants. I allude to syphilis. We have no idea of the great mortality resulting from this cause unless we examine the register of hospitals for infants. Most all children inheriting this disease die before they are a year old, and a large majority perish during the first two months. Now, can we do anything to diminish this mortuary record?

As a large majority of these children are born in cities, something, perhaps, might be done in the way of stamping out the disease. Several years ago the plan of licensing and inspection was tried in St. Louis, and it was said by Dr. Bernard, who was supervisor of inspection, that during its existence it curtailed the disease about 40 per cent. But the law was short-lived, as it was so repugnant to the minds of the religious element of the population that they soon rebelled against it, and it was abolished. They seemed to be actuated by the principle that, although it may be understood that moral disease exists among us, we must not acknowledge it openly. The St. Louis law was that every house of ill-repute was granted a license, and, on inspection, every inmate who was not diseased was granted a certificate of health, and those who were found to be diseased were refused a certificate. Now the question arises, was there not an element in this law lacking, as far as it respects stamping out the disease? It should have been fuller in its provisions. Every woman found with the disease should have been put in a hospital for the treatment of syphilis.

It was the licensing part of the law that the religious part of the population complained of, which could have been left out. There is but little doubt that inspection comes the nearest of any means we possess, added to confinement in hospital until well, that promises to stamp out the disease or greatly limit its present extent. It may be said, in this regard, that many places of a private character would be overlooked, but by strict surveillance of proper officers all such houses of resort would finally be discovered. It is impossible to ignore the existence of such an evil. We have had it among us for centuries, and if it is the result of super-civilization, so much the worse for humanity. I think it must be evident to the minds of all observers that if syphilis and alcoholism could be eliminated from the world, the death-rate of the race would be wonderfully abridged; and if by any means possible such a utopian condition of the world could be brought about, the millenium would be near at hand and humanity would rise up as one man and pronounce the authors of such results the great benefactors of their race.

As for the filthy condition of the streets, as before remarked, where the poorer classes congregate, as well as the unventilated tenement houses are concerned, much could be done by the proper surveillance of the health officers. It must be patent to the observation, at least of all medical men, that it is in such localities where epidemic diseases find their greatest number of victims. The construction of tenement houses, as it regards drainage and ventilation, should be under the supervision of a health officer. All such things as these can be regulated by municipal authority. The women living in such unhealthy localities cannot be in good health themselves, and, consequently, their offspring will be affected thereby; and in many instances the infants, to start on, are independent of hereditary diseases, anæmic, or possessed with very feeble constitutions, added to these impoverished milk and unsanitary surroundings. These are common causes of mortality among infants. In such places as these we find overwork and the want of proper nourishing food on the part of the mother as the causes of bad health and death among infants; while in higher life, among fashionable women, other causes militate against infantile health and life. Here we find imprudence in dress, inactive life, late hours and irregular habits, producing impaired appetite and digestion, and, consequently, a poorly nourished embryo. And after birth the little impoverished waif, on account of the

fashionable tenets of the mother, is greatly neglected, perhaps committed to the care of a careless and incompetent nurse; and if the little thing dies it is recorded in the mortuary list as having died of inanition, when really it was from neglect and starvation.

Can anything be done that will work a favorable change in this particular? It is feared the world will be compelled to wait an indefinite time, at least until common sense and proper maternal instinct resume, to some extent, their ancient domain. Fortunately these unnatural habits and lack of philo-progenitiveness are confined, comparatively speaking, to but a small portion of our population. In order to make a comparison between the offspring of such parents and that of those who observe regular habits, take due amount of exercise and observe the proper maternal care of their infants, we have only to note the contrast presented between the two classes of children. If we go into the country we commonly see not only large families of children, but stout and healthy ones. Here their mothers, as a rule, observe the various means to preserve health, and furnish a healthy supply of nourishment to their offspring. Could not the profession who have charge of the fashionable portion of humanity as their clientage exert a salutary influence over them in this particular?

It is said by a late writer in this regard, that "it is a common thing to find in fashionable families but few children, hardly ever more than two to four at the highest, many having only one and a poodle dog, and some only the poodle." If they have been unfortunate enough to give birth to many children, death has claimed a majority of them through neglect, if not disease.

As the mortality of infants during the first month of life is so great, it behooves us to have special supervision over them. As far as possible a healthy, ventilated room should be chosen for the lying-in woman, the temperature of which should be kept equable at about 80° F. When the child is born it should be kept, if possible, in a temperature of 90° or 95° until it is washed and dressed, and then placed in bed alongside its mother. Many infants have perished from the effects of exposure between birth and being dressed. As soon as convenient the child should be allowed the breast, whether there is milk present or not, so that it may learn to nurse. Of course, if the breast contains no milk, which is common until the second day, the child must be fed on fresh cow's milk. After the secretion of milk is established the infant should be allowed the breast every four or five hours, or oftener if necessary. The mother should avoid taking any drugs in sufficient quantity to affect the child deleteriously. The position of the child should be changed frequently, not allowing it to remain in one position more than a few hours at a time, say when it nurses or is fed. This is essential on account of the bones of the head not being sufficiently compact to support the gravity of the brain so as to preserve its proper shape. Many children, from inattention in this particular, have misshapen heads. When children are born in cold or changeable weather they should wear caps. Neglect in this regard frequently eventuates in cold in the head, producing discharges from the nose and ears, which not infrequently becomes chronic. An infant should not be washed all over in cold weather oftener than once a week, and then always in a temperature not less than 80° or 85° and with warm water. Care should always be observed that the flexions of the joints and the folds of skin around the neck are dusted daily with some finely prepared powder to prevent chafing, the finely prepared chalk being as good as any. An infant should not be taken out in cold weather unless well protected with heavy, warm clothing and well wrapped up. Young children are very easily impressed with cold from exposure, and on that account more liable to inflammations of the chest, brain, etc., than older children. Special supervision should be exercised over them in this particular. Close attention should be exercised over the digestive apparatus of infants, and particularly so in their early life, when deprived of the mother's milk. As a rule, a child under its mother's care, when she is in good health, needs but little outside attention; but when it is necessary to feed it on artificial food it is liable to indigestion, flatulency, colic, etc., which, if not corrected, will soon prostrate it. This is more particularly so in hot weather. This condition, in many instances, is due to the use of milk undergoing fermentation, and to neglect in properly cleansing the nursing bottle, etc. In warm weather it would be better to obtain fresh milk from the cow three times a day, and every time a bottle is used it should be thoroughly cleansed and rinsed with a warm solution of common soda and allowed to remain in the sunshine until needed for further use. A young infant fed on cow's milk should have the bottle every three or four hours, so that it will not, by becoming very hungry, take too much at a time and thereby engender indigestion and colic by over-distension of the stomach.

It is a question among the best men in the profession whether or not cow's milk should be diluted. A majority of those writing on the subject recommend dilution from one-fourth to three-fourths, according to the age of the child. As far as my observation extends, I prefer to use the milk undiluted. When we dilute cow's milk to one-fourth it requires a large quantity of it to furnish a due amount of nourishment, which, if the child takes enough, so distends the stomach as to produce colic, and if kept up sufficiently long we will have disordered digestion, diarrhœa

and colic, due to over-distension of the organ. And, on the other hand, if a sufficient amount is not taken to produce over-distension of the organ, gradual starvation will ensue.

When I promised our worthy Chairman to write this paper I consulted my friend Prof. Howe, scientist of the Louisville Polytechnic Society, in regard to milk, etc., as food for infants, the reagents necessary for digestion, etc. He kindly furnished me the following notes:

First.—The food which nature has provided for the infant is presumably the best. This consists essentially of

1. Casein—the nitrogenous food, flesh-former.
2. Sugar } the carbonaceous foods, heat and
3. Fat } force producers.
4. Salts—bone former.
5. Water.

Second.—In all foods prepared for infants the latter ingredients are present in sufficient quantity, and play not a small part either in starving the infant or impairing its power of digestion.

Third.—Casein. The casein of woman's milk is characterized by not forming a solid curd when acidified. This, among the mammalia, is said to be true only of the milk of woman and the mare. Other milks form more or less tough coagulum when acidified, and hence the infant's stomach at once assumes a condition in which the feeble digestive fluids of the infant fail to act upon them. On the other hand the casein of the milk of woman or the mare in the infant's stomach is so finely divided that it is digestible. This is a plausible reason why infants have been found to thrive better upon mare's milk than upon that of cows (carried out on a large scale in Paris), even though the proportion of its ingredients is not that of woman's milk. It has been attempted to obviate this difficulty of coagulation by diluting cow's milk (ineffectual), or by adding various farinaceous materials which are in themselves indigestible by the infant, as mentioned later.

This difficulty may be obviated by partially digesting cow's milk (peptonizing, a process which requires some considerable care), or by malting, both of which seem to render the casein of cow's milk digestible by the infant.

Fourth.—Sugar. Nature has provided for the child an animal sugar—lactose, or milk sugar, which is distinguished from all vegetable sugars by yielding, upon fermentation, lactic acid, an acid which in itself plays an important part in digestion. Milk sugar cannot safely be substituted in an infant's food by any vegetable sugar, such as cane or grape sugar, both of which are very readily fermentable and produce alcohol and ascetic acid.

Fifth.—Much less can the sugar be substituted by starch in any of its forms, nor can any form of starch be safely used in an infant's food, as is most commonly done in most so-called infants' foods. Nature has prepared *animal* food for the infant; no *vegetable* food can be a substitute.

As regards starch, the infant's saliva contains no ptyalin, which is important for its digestion, and in many cases at least the various starch preparations will pass through the infant's digestive canal in a wholly undigested condition, and the infant, eating heartily, may be hungry all the time and finally starve to death.

We are frequently asked by parents if it is not better to feed infants on other food besides breast milk. The answer should be infallibly no, unless the mother gives an insufficient supply. It is shown by Dr. Whitehead's tables that the children fed on breast milk exclusively resulted in perfect development in 67 per cent., medium development in 23 per cent., and bad development in 14 per cent.; whereas in children fed partly on breast milk and partly on other food there was good development in only 52 per cent., medium in 19, and bad in 39 per cent.; and lastly, as opposed to these results, where hand feeding was used entirely, there was good development in 10 per cent., medium in 26, and bad development in 64 per cent.

If an infant is so unfortunate as to be deprived of its natural food, either on account of the heartlessness of its mother or some accidental cause, it should be committed to the care of a competent, careful nurse. In selecting a nurse it is essential that one of good moral character should be chosen, and, if a wet-nurse, that she is perfectly healthy. Even if one of this character is selected she and the child should be under the supervision of the medical attendant at least once a week for several months, in order to know that the child is well supplied, that it digests its food, and that it is well taken care of.

I believe more infants die from neglect, exposure and want of proper food than from actual disease, aside from heredity. Then, if these matters could be properly supervised, there would be a great saving of infantile life. Many times, if the nurse is of a vicious and reckless disposition and the child becomes fretful from indigestion, hunger or pain, it is dosed with some opiate preparation, or perhaps alcoholic beverage, in order to quiet it and thereby secure time for her own benefit. Habits of this kind practiced on infants are very injurious to health, tending very greatly to impair the digestive functions and vitiate the secretions, to say nothing of ultimate injurious effects that may result.

I have always thought that a mother in good or ordinary health, who, for the sake of enjoying fashionable life or for any other selfish motive, would commit her child to the *tender mercies* of a wet-nurse, or, in fact, any other, is destitute of that natural instinct which pertains even to all inferior animals, and that she, in so doing, not only commits a sin against true motherhood, but

is guilty of possible, unintentional infanticide. Children under a year old, as a rule, when fed on breast milk, need but little medication, unless affected by contagious diseases peculiar to them. To be sure, in cities, during the hot season, we may have some bowel affections which are, apparently, unavoidable. It would be well, in extremely hot weather, to take delicate, and especially bottle-fed, children to the country, where a change of air would do more good than medicine. But on account of want of means a large majority of city children are deprived of the advantage of such a change. It is under circumstances of this kind, particularly in unsanitary localities, that hot weather diseases run up such long mortality lists. This character of children's ailments make up a large ratio of the death-rate in cities during the hot months. I have thought that, through charitable organizations, aided by municipal authority, homes for indigent children might be constructed, where they could be cared for during the summer months and thereby save the lives of thousands who otherwise die from neglect, the want of proper nourishment and from unsanitary surroundings. Much good could be accomplished during extreme hot weather in such buildings by the use of large fans in the various rooms, kept in motion. The difference between hot air in motion and in a state of rest becomes very palpable when we go from a close room into the open air, where there is a breeze. Although the temperature is the same, warm air in motion produces a cooling and an invigorating effect. How grateful it is even to be fanned in the face when one is almost overcome with heat. Large fans could be easily and cheaply constructed and worked at an inconsiderable expense. Netting, something in the form of hammocks, could also be arranged in the rooms to serve in the place of beds for the children, which would allow the animal heat to escape much more readily than from ordinary beds. The netting should be so arranged as to be as nearly horizontal as possible. This would be a very eligible and beneficial arrangement, more particularly in cases of disease accompanied with very high temperature.

Infants, as before remarked, under ordinary circumstances need but little medicine, and that of a mild character. It has been a habit with me for years to use the most simple means in children under a year old. Colic and disordered bowels due to indigestion are the main troubles we are called upon to treat during the first months of infant life. If the child is fretful and restless, with tympany of the stomach, a little ginger or mint tea, sweetened, will in a majority of cases afford relief. Should there be much pain, add a few drops of paregoric. When this is due to indigestion, a little lactopeptine and bismuth sub. nit. might be given with advantage after each nursing.

In cases of diarrhœa accompanied with acidity of the discharges, which is generally evidenced by the smell as well as a foamy appearance, the first thing to do is to correct the acidity. For this purpose a little sublimated or prepared chalk is about as good as anything. This alone will frequently correct the condition of the bowels; but should an astringent be needed, a little syrup made of the fluid extract of cranesbill is as effective and simple as anything we can use; but do not attempt to arrest diarrhœa due to acidity and fermentation by the use of astringents alone. Many times, after the acidity has been corrected, the diarrhœa can be arrested by minute doses of castor oil, say a drop or two given every fifteen minutes until it passes the alimentary canal. The same thing may be accomplished by very minute doses of calomel, say $\frac{1}{16}$ of a grain every half hour until its effects are observed in the discharges.

In an attack of cholera infantum the child should, if in the city, be removed to the country or some place where it can have pure air and healthy surroundings. More, as a rule, can be done by sanitary means than by medicine. If the diarrhœa is accompanied by acid vomiting, administer fresh milk and lime water in small doses frequently repeated, and as soon as the vomiting has ceased exhibit minute portions of calomel or hyd. cum creta frequently repeated until the character of the discharges is changed and become more consistent and less frequent. I have also had good luck in the use of subnitrate of bismuth and Dover's powder in the treatment of cholera infantum. Food should be withheld from the infant during the existence of the acute symptoms. Should the case be protracted after the acute stage has subsided, it would be well to use cretaceous preparations with astringents, such as acetate of lead, cranesbill, kino, etc.

In chronic constipation of young babies harsh purgatives must be avoided, as well as hydrogogues. I have had good results from syrup of figs, cascara sagrada, rhubarb, etc.; but if the child is debilitated combine some muscular tonic, as tinct. nux vom., columbo, etc.

In the various contagious diseases of children isolation is an important element in their management.

In writing this paper it was not intended to claim any superiority over my confrères in the management of infantile life, or with the expectation of presenting anything new in the way of treatment, but more particularly to impress them with the necessity of a closer supervision over young children, more especially during the first months. If, by our attention and advice to parents, we can tide a child over the first year, its prospects to live ten years are increased 50 per cent. It therefore behooves the medical man, as well as parents and nurses, to exercise careful

U of M

supervision over their health during that period. If each one of us could, by increased watchfulness, save even one additional life annually over what we have accomplished in the past, it would add greatly to the population of our country.

DR. SEARS, of Texas, said that the life of a child depends very much upon the care it receives during the first months of its existence. There was great ignorance among the people generally as to the quantity of food a child should have, its nature, and the time and manner of feeding. Infants were, as a rule, too frequently nursed.

DR. WHITNEY, of Rhode Island, thought the author had overstated the prevalence of syphilis in children—for New England, at least. He would especially call attention to straining as a cause of infantile hernia. He had never seen a case of true congenital hernia. The condition at birth is simply *favorable* to the production of hernia and for its production.

DR. WILLIAM PERRY WATSON, of New Jersey, took exception to the advice given by the author of the paper in regard to wearing a cap. He directs mothers to keep the heads and necks of their infants bare, and by this means inures the children to temperature changes. As a result he has very few cases of nasal and pharyngeal catarrh among his practice.

DR. LATIMER, of Maryland, said that for artificial feeding there was no testimony defending anything but cow's milk. The doctor called attention to the differences between cow's and human milk, and said that Dr. Meig's method of preparation was to be highly commended. Nothing had been said in the paper about sterilized milk. The mother's milk was taken by the infant directly from the breast and was practically sterile, no opportunity being given in its passage from the mammary gland to the child's stomach for infection with the spores of decomposition microbes. During the hot months the infection of milk with decomposition microbes was a most important factor in the production of infantile diarrhœa, and the sterilization of the food was a necessary prophylactic measure.

THE PURIFICATION OF DRINKING WATER FOR CITIES.

Read in the Section of State Medicine, at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY CHARLES V. CHAPIN, M.D.,
OF PROVIDENCE, R. I.

The importance of the purification of public water supplies was impressed upon the writer with special emphasis by the brief epidemic of typhoid fever which occurred in Providence last fall. At that time there occurred in the space of two weeks about 250 cases and forty-seven deaths. The cause of the outbreak was the contamination of the river which furnishes our water supply, by the stools of typhoid fever patients. That similar occurrences are by no means rare is well known, and probably instances of the kind have come under the personal observation of very many of the gentlemen here present.

The impurities which are liable to be found in the public water supplies of cities are varied. There may be coloring matter from swamps and bogs or other sources which renders the water disagreeable to the sight. The water may be muddy from the presence of clay or earth. It may contain infusoria or algæ which, of themselves or by their death and decomposition, may render the water exceedingly unpleasant both to smell and taste. The water may also contain larger organisms, such as the eggs of worms, parasitic or otherwise, molluscs or fish, particularly eels. Lastly, the water may contain the active virus of disease. While the other impurities in water which have been mentioned may often be sufficient to demand active measures for their removal, it is the actual pathogenic properties of water which are of peculiar interest to medical men. The disease which far more often than any other has been traced to water is typhoid fever. Medical literature is full of instances where epidemics of greater or less severity have been unquestionably traced to a public water supply. Cholera is another disease which has often been distributed by the same agency. Besides these two in which the facts are beyond dispute there is some evidence to show that dysentery, diarrhœal diseases and malaria may occasionally gain access to the human system through the medium of drinking-water. Now, it has been determined that typhoid fever, cholera and malaria are caused by minute living organisms, and it is most likely that the other diseases mentioned are caused by similar organisms. Hence if we desire to deprive water of its pathogenic properties, and that is the problem which I now wish to consider, we must determine how these organisms can be removed or kept out of our public water supplies. It is true that these organisms doubtless act on the body by means of the soluble chemical products of their vital activity. But such substances can never exist in any potable water in quantity sufficient to do harm, so that if we can remove the organisms themselves we can rest assured that the problem will have been solved.

There are three points at which contamination may be dealt with:

The first is at the source, be it river, lake, spring or well. Every gentleman here will agree with me that no municipality should spare any expense or neglect any legal expedient whereby dangerous contamination of the source of its water supply may be avoided. In many instances, by suitable means of control the water may

thus be kept substantially pure. But in other cases, when the source is in a thickly settled region, this is practically impossible, and fatal contamination is at any time liable to occur. This is well illustrated in the Providence epidemic referred to. Our source of supply is a river flowing through manufacturing villages. At the point where the infection took place the owners of the mill tenements had provided water-tight vaults at a suitable distance from the river, and frequent inspections were made by the Board of Public Works to see that they were kept in repair. But when typhoid fever occurred in these houses the tenants, instead of using the vaults, threw the stools on to the bank of the stream, whence they were washed into the water by the heavy rains.

A second point at which the water supply may be purified is at the point of consumption. To accomplish the removal of the germs of disease as well as of other suspended particles, domestic filters have been used. Sometimes they remove the dirt, sometimes they do not. In any event they do not remove the living bacteria. The experiments of Dr. Swarts, of Providence, show that with one exception the domestic filters offered to the public in this country are worse than useless because, instead of removing microbes from the water, they rather serve as incubators to increase their number. The only filter which he found could be relied on to furnish germ-proof water was the Pasteur, but its cost puts it beyond the reach of all but the wealthy. Boiling water of course destroys all organisms, but it will never be resorted to by the majority of consumers.

Lastly, we must consider the treatment of the whole supply centrally by the municipality. A large amount of experimental work has been done in relation to the removal of microörganisms by filtration through sand or other media, one of the pioneers in this direction being Prof. Pumpelly of this city. Such work has also been done by Hesse and Piecke in Germany and by Frankland in England. But the most recent and elaborate, and particularly interesting from a bacteriological point of view, is the work in filtration which is now being done by the State Board of Health of Massachusetts. These latter experiments are performed chiefly with sewage, but the results attained throw much light on the filtration of potable waters.

The conclusions which have been arrived at are that for continuous filtration on a large scale fine, sharp sand is the best material. The finer the sand the better is the removal of organisms and other suspended matter accomplished, but the slower is the filtration. A rate of from 1 to 2 gal. per sq. ft. per hour has been found to be the most available for practical work. The thickness of the sand makes some difference, but not as much as might be expected, for the upper layers exert by far the greatest influence in removing the organisms. Strange as it may seem, fresh sand is not as effectual as that which has been in use some time, and sterilized sand has the least value of any. This is explained on the supposition that the grains of sand when in use soon become encrusted with organic matter which serves to entangle bacteria and other solid particles. The heating during sterilization destroys this. It is certainly possible by means of sand filtration to remove all bacteria from water. In one of the filters tested by the Massachusetts State Board of Health the organisms in the applied sewage were reduced by filtration from over a million to less than a score, and sometimes none at all were found. In fact, it was demonstrated that the few organisms discovered in the effluent were only such as inhabited the effluent pipe. When enormous numbers of known forms were poured on to the top of the filter none at all could be discovered in the effluent by repeated tests. The depth of sand in this filter is 5 feet and the rate of filtration is very slow, 1 gal. per sq. ft. per twenty-four hours. While this filter purifies the sewage so that it can be and is used for drinking purposes, it is far too slow for actual practice.

Passing from this experimental work we will now briefly consider some of the filters which are in use for supplying drinking-water to towns.

Of filters on a large scale for potable water those at Berlin were the first whose workings were investigated from a bacteriological standpoint. Ever since 1884 regular weekly chemical and biological analyses have been made of the water both immediately before and after filtration and as delivered at the house taps. These experiments, conducted at the Imperial Bureau of Health, furnish the most complete and valuable data concerning the action of this class of filters. Berlin draws its water from two sources, the rivers Spree and Havel. The former is much polluted and contains a large number of microbes, sometimes as many as 100,000 per cc. The Havel supply has a smaller number. The water from both sources is passed through sand filters. The total area of these filters is about 67,000 gm., or nearly twenty acres. They consist of masonry basins containing successive layers of stone, gravel and sand, the essential portion being the upper layer, which is of fine sharp sand and is about 22 inches in thickness. The manner of using the filter is of particular interest, for it is upon this that its value has been found to depend. It is first slowly filled from below with filtered water so as to drive out the air. Unfiltered water is then admitted from above until it is 1 m. in depth above the surface of the sand. It is then allowed to stand until the suspended matter is precipitated upon the surface of the sand in the form of a delicate film. This is an essential feature, for it is this superficial layer of sediment which gives the apparatus its value as a filter. The effluent valves are now

slowly opened and filtration begins. The rate of filtration is at the maximum about 3 cm. per twenty-four hours through each gm. of surface, or a little less than 1 gal. per hour per sq. ft. The amount, however, rapidly becomes less, and it becomes necessary to clean the filters every four to ten days according to the amount of impurities in the water. The cleansing is done by drawing off the water and removing by means of flat shovels a very thin layer from the upper surface of the filter, for it has been found that the impurities do not penetrate more than a few millimetres. The chemical analysis shows that by this filtration all of the free ammonia, very small in amount, and a large percentage of the oxidizable material (oxidizable by potassic permanganate), and a considerable amount of the volatile residue is removed.

As regards the removal of bacteria, the weekly examinations of the unfiltered Spree water for the year ending June, 1886, gave the average number of organisms per cc. as 11,278, while in the water immediately after leaving the filter bed there were but 179. The unfiltered Havel water contained 2,628 and the filtered 97. In the former case about 98.5 per cent. and in the latter about 96 per cent. of the microbes were removed. The larger organisms, the algæ and infusoria, are completely removed. It is said, however, that the spores of these algæ do to some extent pass through the filter, so that if the water is stored in reservoirs after filtration algæ sometimes develop there in great quantity. That not only good construction but great care in the management of this class of filters is necessary is illustrated by the fact that Currier found that an American filter constructed on the Berlin plan allowed more than half the organisms to pass through simply because it was not properly cared for.

For many years the various water companies supplying the city of London have employed sand filtration to improve the quality of the water furnished by them. Their filter beds are constructed on substantially the same principle as the Berlin beds, and consist of a layer of fine sand supported on coarser sand and gravel. The thickness of this sand varies from 2½ to 4½ feet. The rate of filtration is from 1.5 to 2 gal. per hour per sq. ft., which is considerably more rapid than in the Berlin filters, though the thickness of the sand is greater. These filters are cleaned at varying intervals depending on the amount of sediment in the water, the usual time being once in two or three weeks. The action of these filters in removing microbes from the water was investigated by Percy F. Frankland, who found that the average number of organisms removed from the water was 97.7 per cent. for the Thames companies and 95.7 per cent. for the Lea companies. In some instances, however, as many as 99.4 per cent. were removed. The number of organisms in the unfiltered Thames water varied from 4,800 to 45,000, and in the Lea water from 2,900 to 39,000. In one instance the filter of the New River Co. reduced the organisms from 20,600 to 74. It is estimated by practical hydraulic engineers that in this country the cost of filter beds of this character would be $25,000 per million gal. of supply, and that the running expenses and interest on plant would bring up the cost of filtering to $10 or $11 per million gallons of water filtered.

Of late years a number of patented filters have been put on the market by American makers and are now in use in many manufactories and in conjunction with several town supplies. In this form of apparatus the water is filtered under a considerable pressure, 40 lbs. or more, and the rate is very rapid and the filters themselves occupy a very much smaller amount of space than do the European gravity filters.

The Hyatt filter consists substantially of a circular wrought iron tank containing as a filtering material about 4½ ft. of moderately fine sharp sand, with about 18 in. of coke (locomotive cinders) on top. This latter is for the purpose of catching the suspended organic matter and preventing its choking the sand. The water passes through the filter under pressure. The resistance of the filter is about 3 lbs.; that is, it decreases the pressure of the water passing through it to that extent. At proper intervals, usually once every twenty-four hours, the filter is cleansed by sending a reversed flow of filtered water up through it, violently agitating it and washing out all the precipitated material that has been removed from the water. The washing takes say ten minutes, and the filter is then ready for use. There is said to be practically no loss of filtering material and it never needs renewal. The rate of filtration is about 125 gal. per sq. ft. per hour. An essential part of the claim of the owners of this filter and of the others which resemble it, is the employment of continuous coagulation with the process of filtration. This coagulation is accomplished by adding to the water before it enters the filter, by means of a suitable contrivance, a small proportion of alum or sulphate of alumina. The amount is easily regulated and the persons in charge of the filters allow a sufficient amount to enter to ensure an effluent which is satisfactory on gross examination. The actual amount used in the filters of this company is said to vary from $\frac{1}{10}$ to 1 gr. per gal., the average being $\frac{6}{10}$ gr. An important question is what becomes of this alum? Prof. Chandler states that he took samples of the water of the Raritan River before and after filtration by the Hyatt filter, which is in use at the Somerville waterworks. He found alum present in the unfiltered water in about the amount in which the operators of the filter claimed they were adding it—⅓ gr. per gal. The water after filtration he found "did not contain a trace of alum." Other analysts have obtained the same results. It is

claimed by the makers of these filters that the alum all unites with the organic matter in solution in the water and, forming a part of the coagulum, is removed with it. Whether this is true in all instances I am not prepared to say, enough experiments under varying circumstances have not as yet been made to determine it with certainty. We can be sure, however, on general principles, that a considerable amount of alum must be decomposed and removed in this way if there is much organic matter in the water, and the alum would not be added unless this organic matter were present. In the localities where this process is in use there is no complaint of any taste of alum in the water, nor any complaint that I have heard of from medical men that the added alum causes any digestive troubles. And we should hardly expect that it would, for even 1 gr. in a gallon is an extremely small amount, and much less than this is the usual quantity employed and a large part of this must be removed in the precipitate. On studying alum baking powders Prof. Mallet found that 20 gr. of alumina hydrate were required to affect digestion unpleasantly, and it is hardly to be supposed that the amount derived from even ⅓ gr. taken in twenty-four hours in divided doses would produce any bad results. And ⅓ gr. is as much as would ever be taken by one person even if it all passed through the filter. It seems highly improbable, then, that the addition of alum to potable water to produce coagulation preparatory to filtration can produce any injurious consequences on the consumers.

The National filter is another filter of this class which has come into quite general use, and which differs from the Hyatt in what are apparently minor points. The makers of this filter recommend that when it is used to furnish a town supply a pump be used to add the alum solution, thus ensuring a more certain regulation of the amount than can be obtained by the regulation which depends on a supposed constant rate of solution.

The waterworks in this city have recently put in a filter which will be described to you by Dr. Rankin, and which seems to differ from the Hyatt only that it is open to the air and filters under a head of a few feet only, and is so very much larger that the rate of filtration is hardly one-fifth as great as in the Hyatt and National filters. These points of difference seem to be in favor of the Newport filter, and why it does not give better results I cannot say. The owners, however, do not claim that it is yet in proper working order, and have certain changes to make which they expect will improve it.

There are several other makers of this class of filters, but the Hyatt and National are the best known and seem to be good types of the principle of coagulation and continuous filtration under pressure.

For the purpose of examining the Hyatt filter in person I recently visited Long Branch, where a 2,000,000 gal. plant was established a year ago. I found the plant in operation as described, and it had given great satisfaction to the users of the water ever since it had been put in. At the time of my visit the unfiltered water was of a dark yellowish brown color and had considerable organic matter in suspension. It was surface water from swamps and shallow ponds. The effluent was perfectly clear and colorless. The pumps were lifting at the rate of about 1,800,000 gal. per twenty-four hours, and the engineer was adding about 180 lbs. of alum during the same time. This would be a little less than $\frac{8}{10}$ gr. per gal. The filters had been cleaned in the morning and I made a biological examination of the water in the afternoon. Three gelatin culture tests were made on the spot at intervals of half an hour. After a growth of thirty-six hours, at which time the liquefying cultures began to run together, the results were as follows:

	1st Test.	2nd Test.	3rd Test.
Unfiltered	258	298	248
Filtered	5	2	3

The only other biological test that I know of, of this filter, was a single one of Prof. Formad at Allegheny City, in which about two-thirds of the organisms were removed.

None of the National filters for town use have been accessible to me, but the makers of the filter suggested that a satisfactory test could be made at the Valley worsted mills, Providence, or at the bleachery at Canton, Mass. In the former place I found the alum was not used, and the filter was made to work under much greater pressure than was intended. It furnished water clear enough for manufacturing purposes, but scarcely half the microörganisms were removed. At Canton the alum was in use, and too much so, for it was stated by the engineer that he thought that 1½ grains per gallon was added to the water. What the amount really was I do not know, but it could be readily tasted in the effluent. Five tests gave an average of 86 per cent. of the organisms removed. Dr. Currier tested one of these filters at Brooklyn, and found that it removed a much larger per cent., and in one instance the effluent was entirely sterile. He also failed to detect any alum in the water.

The Newport filter I found had no appreciable effect in removing the bacteria from the water, and you have probably noticed that it leaves much of the other suspended matter. But as I am informed by Dr. Rankin, the amount of alum added is so small, and it is so largely removed by the filter that it can exert no injurious effect upon the water.

There seems to be then little doubt that both the sand filters in use in Europe and certain of the coagulating filters made in this country can

be relied upon to remove from 90 to 100 per cent. of the organisms contained in the water.

They cannot be relied upon to render infected water absolutely safe. But we know that the smaller the number of pathogenic organisms which a person receives the less liable is he to be affected by them. If nine-tenths of the organisms can be removed, I believe it is not far from the truth to assume that nine-tenths of the danger will be removed.

The cost of the European system is, as has been stated, $10 per 1,000,000 gallons. The cost of the coagulating system is not more than half that. It is also, when properly constructed, much easier to manage. Its only disadvantage is in the addition of a foreign substance as a coagulent, and I am inclined to believe that further investigation will show that no danger is to be apprehended on that score.

Aeration has been spoken of and used as a means of purifying water, but it can only accomplish this to a very limited degree. There is no reason to believe that aeration has any influence on the growth of bacteria, and recent investigations have shown that its power of oxidation is very slight indeed. It is true that aeration is sometimes very useful in removing the smell or taste of water, but it accomplishes this by volatilizing or driving out the offensive substances, rather than actually oxidizing them *in situ*. At least this is the view now generally adopted by the best chemists.

There is another means of improving the water supply, at least, so far as bacteria are concerned, and that is by allowing it to stand in storage reservoirs. The experiments of Wolrhügel, Bolton, Frankland, and others, have demonstrated that pathogenic organisms, such as cholera, typhoid and anthrax bacilli and various pus-forming organisms soon die in ordinary river or well water, the typhoid bacillus living only about two weeks. Certain harmless aquatic forms do, however, live and propagate, but observations show that most of the bacteria found in our town supplies rapidly perish. This was found to be true at Berlin, and Prof. Sedgwick determined it for Boston. In Providence we have two reservoirs, both in constant use. One holding ten days' supply, the other three months. Bi-monthly analysis for a year showed as the average number of organisms in the river 354, in the ten days' reservoir 223, in the three months' reservoir 42. Storage reservoirs may, however, develop algæ which, besides rendering the water unpleasant to the taste and smell by their death, furnish pabulum for the bacteria. But the growth of the algæ can be prevented by covering the reservoirs, and it is not to be apprehended in every case.

In order to purify water then,

1. The source must be made as pure as possible.
2. Storage reservoirs should be built.
3. The water should be filtered by the municipality.
4. The consumer must boil the water if any danger is suspected to exist; but it is not likely to if the first three conditions are complied with.

DR. SMART took exception to the suggested idea that if nine-tenths of the bacteria are removed by filtration the danger is proportionately lessened. He said it was all very proper to filter water if the water was made purer by the filtration, and it was a good thing to have experimenters determine for us in such cases the extent of the purification that was effected; but he suggested that certain experiments had been performed to which no reference had been made by the author of the paper just read. Biological experiments, in which the organism had been cultivated, not on gelatine plates, but in the human system. The paper had a special reference to typhoid fever, and we all know of the propagation of typhoid by waters, well waters which had been filtered through the soil until they had lost all trace of their organic matter, and became apparently so pure that the chemical analysists were obliged to confess their inability in certain cases to say whether a water was wholesome, although it seemed to be pure. On account of this consideration he objected to placing any reliance on filtration where the contention was against typhoid fever. Water which has not been contaminated should be obtained from a community rather than permit its lives to be wasted by a fever germ which cannot be removed by filtration. Non-contaminated water should be procured, no matter what the financial consideration.

EVISCERATION.

Read in the Section of Ophthalmology, at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY A. E. PRINCE, M.D.,
OF JACKSONVILLE, ILL.

It will be five years in September since Prof. Alf. Graefe, of Halle, delivered his address before the Society of Naturalists and Physicians at Madgeburg in which he described the operation of exenteration or evisceration, and asserted the advantages that it possessed (except in malignant diseases) over enucleation, viz.: that the danger of meningitis was avoided, and that a superior stump was thereby obtained. Besides the denial of these claims, by some it has been objected that the greater degree of pain, and increased amount of inflammatory reaction, together with the prolonged period of healing, were decided disadvantages to be taken into account.

It is not my purpose in this paper to review the arguments of the author regarding the advantages of the method; but first, to offer a consideration

relating to the chief objection, that of the consequent pain; and second, to mention an observation which may prove of value in securing a further improvement in the character of the stump.

PAIN.

All the published accounts of the operation which have come to my notice agree in the acknowledgment, that the severity of the pain and the duration of the healing is materially greater after evisceration than is the case following enucleation. My observation in the first five cases was a corroboration of these statements. The swelling was intense and the pain for several days was very great. Local application failed to afford relief, and morphia was required. At this period in my experience, stimulated by this discouraging feature, an effort was made to determine the cause of the pain. The anatomical fact that the long ciliary nerves lie in exposed grooves along the concave surface of the sclera, leading forward to the ciliary region, led at once to the hypothesis that the cause of the pain was the tension, pressure and inflammatory irritation to which these nerves were subjected.

To test the truth of this hypothesis the entire concave surface of the sclera was cauterized with pure carbolic acid immediately following evisceration in a case of extremely painful panophthalmitis consequent upon an incision, the suffering attending which had been intense for several days.

The result surpassed all expectations. The pain ceased with the operation. The degree of swelling was small and the patient was discharged in five days. Since this operation the number of eviscerations has been about twenty-five. The results have not been uniformly so brilliant. Sometimes the conjunctiva has become œdematous and been forced out through the palpebral aperture, but in no case, in which the cauterization has been efficient, has there been the type of pain which was remarked previous to the cauterizing treatment.

It is believed that the use of the acid in this connection is indicated

1. On account of its quality as an antiseptic.
2. Because it is an anæsthetic.
3. Because it is believed to close the apertures in the sclera, and thus prevent the escape into the orbit or sheath of the nerve, of any microörganisms which should escape the action of the acid.
4. Because the sensory nerves thus treated cannot respond in sensations of pain to the subsequent irritation and tension to which they are liable to be subjected.

STUMP.

The second question raised by critics is that of the nature of the stump.

That the question is one which deserves attention will not be denied. The inadequacy of the stump following enucleation needs only to be mentioned. Dr. Mules, of Manchester, England, struck a responsive sentiment when he published his observation on the use of the glass vitreous, in 1884.

The general feeling was that it would be a great step forward in cosmetic surgery if his method could stand the test of experience.

From the little that has since been said of it I am led to infer that the practice, which was at first so extensively resorted to in Manchester, has not met with extended favor. My experience in the use of the artificial vitreous in six cases was at first very encouraging, but later equally discouraging.

While the balls were at the commencement retained kindly and the patient seemed overjoyed at the excellence of the stump, this joy was converted later into grief in five cases of the six by the absorption of the line of union and the escape of the glass ball. Though my experience in attempting to secure the permanent retention of artificial vitreous is to be regarded as a failure, yet there was an element of instruction in it which I offer for your consideration. It was noticed in some of these cases that even though the glass ball was retained but a few days, it left upon its escape a distended sclerotic, infiltrated with formative material which prevented the usual collapse, and enclosed a cavity which gradually filled with granulations and finally resulted in a stump which was fuller and more mobile than that following enucleation. Following the lead of this inquiry I was led from theoretical considerations, after cauterizing with carbolic acid, *to pack the cavity of the eviscerated globe with pulverized iodoform.*

The method which has been employed is to dry out the globe and, after pouring from a paper funnel into the cavity of the globe as much of the powder as it will contain, to tamp it with cotton on a cotton holder, making room for more of the iodoform, which also is to be lightly packed into the cavity. If packed too tightly the escape of the serum is impeded, and in that event, either forced to infiltrate into the orbit or extrude the plug of iodoform. Pursuing this process it has been observed in more than a dozen cases that the sclera remains partly distended by the iodoform, which may remain in position for several days or even weeks, in some cases.

In one case of recent injury in which I eviscerated, cauterized and packed with iodoform, on the following day no pain had been experienced and exceptionally no swelling had resulted. The patient was to notify me if he had any trouble. On the fifth day my assistant called and found that he had removed the bandage and taken a trip into the country. He subsequently objected to having the bandage reapplied, and was digging wells in another week. In his case a small plug of iodoform remained for three weeks and was finally crowded out by the encroaching granulations.

An excellent stump possessing good excursion was the result. After three months, considerable shrinkage has occurred, but there is still a fair degree of prominence and good motion. In no case in which iodoform has been packed into the sclerotic cavity has there been the least suppuration, which, to my mind, establishes the position of iodoform as an antiseptic, when it can be retained in contact with moist organized tissue, in the presence of which iodine is probably liberated.

The conclusion drawn from my experience is that, though the subsequent shrinkage is more than we would wish, yet, the resulting stump is sufficiently better than that following enucleation to lead me to prefer it in all cases, except in those of suspected malignancy, and those in which the fellow eye is deeply situated in the orbit.

Dr. Prince also exhibited a book for registering cases in which the ruling is so arranged that, by glancing at the page, it is possible to see immediately the number of cases of a given disease recorded.

DR. JACKSON stated that Dr. Williams, of Boston, was the first to record a case of evisceration. Dr. Williams was thereupon asked to speak on the subject.

DR. WILLIAMS regarded the pain ensuing after evisceration of the globe as differing from the ciliary neuralgia previously felt, in having such a character as might be due to œdema and congestion of the conjunctiva and the orbital cellular tissue. He had been in the habit of evacuating completely the contents of the scleral cavity in cases of phlegmonous inflammation of the globe, and then—as also in excision of anterior portions of the globe in cases of anterior staphyloma or hydrophthalmia—of bringing the edges of sclera together with sutures. A very good stump, sometimes with little diminution in size of the globe, is thus obtained, which partly fills the orbital cavity and affords good support to an artificial eye.

WHAT DRESSING SHALL LIE NEXT THE WOUND?

Read in the Section of Surgery and Anatomy, at the Fortieth Annual Meeting of the American Medical Association, June, 1889..

BY ROBERT T. MORRIS, M.D.,
OF NEW YORK.

The combination of vaseline or oil spread upon any textile fabric represents the worst type of surgical dressing, because the unguent mingles with exuded lymph and retards organization of the latter; because the textile fabric entangles new epithelium cells and connective tissue cells; and because the moist condition of such dressing favors the development of troublesome micrococci. (Lint and cotton are even worse than textile fabrics.)

The cerates spread upon textile fabrics are one point better, because new epithelium cells are not entangled in the mass, but such dresssings must not be employed nowadays.

Balsams spread upon textile fabrics or upon lint or oakum have a very limited field of usefulness. The dressing composed of the above mentioned elements is fairly antiseptic, but it does not avoid the danger of entanglement of new epithelium and connective tissue cells in a wound which is undergoing repair.

There are only two types of the perfect dressing. An idoform covering for small exposed wounds represents one of these. Iodoform forms a thin, firm coagulum with lymph, and this is not readily destroyed by microörganisms. Moreover, even when a limited number of microbes are at work, the iodoform neutralizes the poisonous ptomaines which they produce, and thus removes an element of disturbance.

The other perfect dressing is the one which is required for the great majority of wounds, and it is composed of the following elements and for the following reasons. Let me say by way of preface that the surgeon is supposed to be familiar with the scientific antiseptic methods of to-day.

Immediately next the wound we must have a strip of the Lister protective oiled silk, which is furnished by all manufacturers of antiseptic supplies nowadays. New epithelium and connective tissue cells shoot along under this material without interruption, and it is the only material with which I am familiar that will prove wholly satisfactory. Gutta-percha tissue is absolutely waterproof and the wound beneath it looks sodden. Spun glass does not avoid the danger of entanglement of new repair cells; but the Lister's protective oiled silk allows of a sufficient transudation of moisture from the wound, so that the tissues beneath this dressing are not kept abnormally moist, and it presents a regular smooth surface to the dressings applied. Without the Lister's protective, it is almost impossible to obtain repair in a wound by the new method of clot replacement—but with the protective, after the employment of actual antiseptic methods of work, it is an easy matter to obtain repair in quite large open wounds in a very short time by the method of clot replacement.

Again, in skin grafting, the Lister's protective will make even pressure upon all parts of the wound, and when the dressing is changed we avoid tearing off the thin hyaline borders of new epithelium that have started in on their mission of repair. It makes a vast difference whether we apply a dressing in which this pretty new epithelium becomes entangled, or one under which the epithelium is allowed to attend strictly to its own affairs.

If we wish to apply the permanent dressing to a large suppurating surface and to stop suppuration it is difficult to accomplish our ends without

the alliance of the Lister's protective antiseptically prepared.

We must first destroy all of the pus and all of the microörganisms by pouring peroxide of hydrogen upon the suppurating surface. As soon as the peroxide stops foaming we know that the granulating surface is chemically pure. The strip of Lister protective, just large enough to cover the granulating surface, is then applied, and over it a bulky dressing of absorbent gauze or cotton. This dressing may remain in place untouched for several weeks if necessary, and it is possible to apply the dressing in such a way that not another drop of pus will be formed beneath it.

FORCED RESPIRATION.

Delivered in the Section of Practice of Medicine, Materia Medica and Physiology, at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY GEO. E. FELL, M.D., F.R.M.S.,
OF BUFFALO, N. Y.

Forced respiration is an advance upon artificial respiration. It will save human life where the latter will fail. This is now a clearly demonstrated fact, the cases treated by the author proving this conclusively. Four lives have been saved in America by the author and one in Vienna later by Prof. Dr. Boehm, of the Vienna General Hospital. In the first case 20 grs. of morphia were taken. After all known methods of resuscitation had been used, forced respiration was used for two and one-half hours and the life of the patient saved.

The second case took place in Vienna, Austria. In the third case 2 ozs. of tr. opii had been taken, all retained, and after artificial respiration had failed, forced respiration continued from 4 A.M. until 6:30 P.M., or fourteen and one-half hours, succeeded.

Fourth case. Tr. opii ℥ij taken, anterior jugular vein and trachea cut with razor, and a large amount of blood lost. Forced respiration produced; patient became conscious in four hours. Forced respiration kept up until 4 A.M., when ℥viij of a salt solution of ½ per cent. was injected into left basilic vein by transfusion method. After twenty-one and one-half hours the patient first breathed freely for himself. In half an hour he requested that forced respiration be renewed for him, this was repeated and the patient made a good recovery.

The fifth case took place in a man 80 years of age who had taken ℥j tr. opii. Forced respiration kept up for some twelve hours failed to produce recovery.

Sixth case. Child 18 days of age had been given by mistake of a physician 1 gr. of morphia, which was retained with all its serious effects five hours before respiration per tracheotomy was instituted. After about four hours' time it failed through heart failure to keep up life.

Seventh case. Morphia in large but unknown quantity taken. Operation undertaken after pulse at wrist was lost, pupils dilated, and auscultation failed to detect heart action; blood on tracheotomy venous. Forced respiration produced return of pulse at both wrists and clear action of heart on auscultation. Blood became arterial. Within about an hour it stopped beating.

Eighth case. Tr. opii ℥ij taken. Patient cyanosed, heart action weak, respirations about 1 per minute, dilatation of asphyxia taking place. Forced respiration for about eleven hours saved the patient. This last case occurred within this week.

The apparatus is simple, practical, can be used by any intelligent physician, and consists of a bellows to supply a steady column of air which passes through an air heating apparatus. The operation may be carried on in the open air. The apparatus connects with an air valve which controls the ingress of air to the lungs and is connected by an elastic tube with a tracheotomy tube which is placed in neck and trachea of patient.

The movements of bellows are utilized to control time of inspiration and expiration. The author believes that the operation should be used in cases where indicated, now that it has been demonstrated to be of value in saving human life.

THE PRINCIPLES THAT SHOULD GUIDE US IN THE RATIONAL TREATMENT OF GONORRHŒA.

Read before the Mississippi Valley Medical Association, September, 1889.

BY BRANSFORD LEWIS, M.D.,
OF ST. LOUIS

If we were to reckon progress in medicine by stages, we could select no more apt a term for designating the present one than that of the Stage of Bacteriology. Bacteriology has assumed such an important rôle in all that relates to medicine or surgery, that our attention is drawn to it in the consideration of almost every subject in medical or surgical science. And yet, dropping from this lofty plane of thought, which tempts us into the field of glittering generalities, and limiting ourselves to the more practical question at hand, let us inquire, what has this all-absorbing and comprehensive study and knowledge of bacteriology done for assistance in the treatment of gonorrhœa? Has the hope of aborting, of quelling, of exterminating the disease by a treatment based on the discovery, study and acquaintance with the life history of that sturdy villain, the gonococcus, been realized? Have the methods of treatment thus brought into vogue accomplished the great wonders expected of them? Have they accomplished anything

more than the palliation, to a considerable extent, of the severity of the disease, of shortening, somewhat, the duration of its several stages, and of doing away with the old and barbarous forms of astringent, caustic and stimulating injections? I believe that all those who have tried this or that new antiseptic, this or that "infallible germicide," —not simply on two or three isolated cases, in which beautiful results may have been attained, and which, by the way, were in all probability not gonorrhœa; I say, that all those who have tried such new antiseptic plans of treatment in a number of cases are doubtless convinced that none are infallible; that all are subject to various influences, deleterious or favorable, that were met with in treating after the older, prudent methods.

Many beautiful and touching theories have been constructed to explain how the gonococcous would quail with fear when, in his revels, he should detect from afar the fumes of death-dealing iodoform, brought into action by means of this or that preparation; or how he would shrink with horror at the prospect of being literally boiled alive by hot injections; or washed out into the cold, cold world by the relentless flood of a prolonged irrigation; or of being crushed in spirit, body and soul by the continuous presence of a medicated gelatine bougie; or dried up into an Egyptian mummy of a coccus in the arid soil of a mildly astringent, antiseptic, non-irritating, magic healing, absorbent powder! But experience with these agents would seem to indicate that the usual rule of the breeding of contempt by familiarity is not broken in this instance. Nay, more. That the festive gonococcus after a time appears to become sufficiently acclimated to enjoy his surroundings, for a while, at least.

And this, notwithstanding the fact that antiseptics do kill gonococci, and with great certainty and facility—when they are in culture-fluids. But why not, when they are in the urethra, as well? For this reason: The gonococcus in preparing himself for the conflict does not foolishly remain where his foes can get at him with these various medicaments; he makes his landing and starts immediately for the woods, so to speak. He pushes on, by proliferation, between the epithelial cells, breaking through their connecting substance and finally ensconces himself below its deepest layers, along on the basement membrane, and even sometimes within and between the interlacing fibres of this structure. Here he proliferates and disseminates to his heart's content.

This has all been repeatedly and absolutely proved by eminent investigators. Bumm has watched the invasion of the conjunctival tissues by the hordes of gonococci; has seen them penetrate to the connective tissue layer, and has noted the strong obstruction offered by this tissue to their further progress. Not only this, but he has seen that the effect of astringents applied over the epithelial surface serves only to constringe and harden this covering, which then, indeed, forms a secure protection against the absorption or leaking through of any germicide or antiseptic which, embodied in the injection or whatnot, has been applied to the mucous surface. Moreover, he has seen that the elimination of the cocci contained in this meshwork of cells and fibres is brought about, not by the penetration of the germicides into the tissues, there to attack the organisms in their strongholds, as has been thought by some, but it is accomplished by a process of proliferation of the connective tissue fibres into which gonococci are unable to penetrate, as intimated above. In the stage of improvement, these fibres, incited by the irritation present, increase in number, push forward, driving before them the microbes towards the surface of the membrane, from which they are washed by the outgoing urine, or killed by the germicides. When a sufficiently strong connective tissue bulwark has been constructed, new epithelial cells begin to dot the denuded surface here and there. The cocci have by this time lost much of their vitality and are unable to break them down with the ease shown at the first onslaught. The conditions for resisting their inroads, too, are then more perfect. They lie simply along the surface or among the superficial cells.

So that the final process of cure depends not altogether on the extermination of the few remaining gonococci, but also, and perhaps even more especially, on the closing of the tissues against their further invasion by the development of firm layers of this protecting barrier. And the inflammation then persisting may be interpreted as denoting the chronic irritation remaining after the severe disorganization wrought by the previous disease

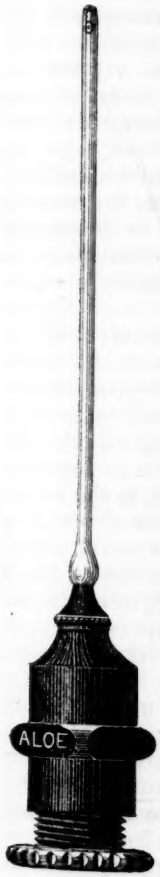
It is for these various reasons then, that in the earlier stages, when the gonococci themselves are doing the damage, the efficacy of antiseptics, germicides, astringents, etc., is limited to the position which they now occupy.

In order to overcome these impediments and give access of the medicines to the ambushed cocci, an enthusiastic Frenchman has recently suggested that the epithelial coat of the mucous membrane be scraped off by a brush-swab, on the plan commonly used in cleaning a pistol barrel; after which the urethra is to be douched with a powerful antiseptic solution. This method is original and ought to prove effective—in producing a stricture, if nothing else. It is certainly more energetic than any I should care to undertake.

I would therefore submit, that efforts at aborting or killing gonorrhœa with strong medicines, antiseptic or otherwise, not only do not attain the desired end, but are ill-advised and liable to be followed by unfortunate sequelæ or complications.

Consequently, treatment should be based on a plan having for its object the idea of carrying the disease through its various stages, as authors used to say, *tuto, cito et jucunde;* allowing the patient to experience as little discomfort, pain and annoyance as possible, mollifying the inflammatory reaction and destroying, devitalizing and discouraging the gonococcocci as much as our rather restricted powers will admit of; and hastening the healing process with all possible speed.

To accomplish these ends, having used various forms and modes of treatment, I have concluded that the one offering, with the general run of cases, the most advantages with the fewest objections, is that of giving in the first stage of the affection, simply alkaline diluents and sedatives internally, making use of such adjuvants as dipping the penis in hot water, etc., and in the second and third stages, giving injections of lanolin, medicated with an absolutely unirritating antiseptic, to which may be added in the third stage a mildly astringent and stimulating antiseptic.



As a means of introducing the ointment, I have been using, during the last six or seven months, this hard rubber applicator, which I present for your inspection. As you see, it consists of a catheter-like stem, perforated at its end, which is inserted into the urethra to the desired depth; a box to contain the ointment, and a piston which is screwed into the box, driving the ointment before it into the stem and thence through the perforations into the urethra. When properly performed, an injection given with this instrument causes absolutely no pain or discomfort for the patient. But sometimes a sudden movement on his part will jog the stem against some tender spot and evoke an immediate and earnest protest. To obviate this and to leave nothing undone that could in any way assist in avoiding irritation of any kind, I have had some vulcanized, soft rubber stems constructed, which answer the purpose very well. The square shape of the second (modified) box is of advantage in affording a surer hold on it. The stem need not be inserted as deep as its length will permit; the flexibility of the lanolin and elasticity of the urethral walls assure the spreading of the ointment over the inflamed area.

As to my reasons for preferring lanolin to other vehicles, I would say, that with reference to the other vehicles, water, the most common, is itself, in its purest state, irritating, and unless it contain some local anæsthetic, will cause pain; powders or tablets, though dry and absorbent when first deposited, soon become moist and cake up, losing the properties for which they were chosen. Gelatine bougies give pain at every movement of the body until they are liquefied; mucilages or emulsions present no advantages which are not possessed to a greater degree by lanolin, and—a point of great importance—all of them are lacking in "staying" qualities; with the first passage of urine, out they go, and in order to make their effect continuous, they must be renewed several times a day, entailing frequent repetition of the trouble, pain, etc., experienced each time.

Lanolin presents none of these disadvantages; it is wholly unirritating—is even soothing to inflamed tissues. When introduced pure, even without any pacifying sedatives, it invariably causes a feeling of relief and comfort to the patient who has been constantly reminded of his ailment by the teasing, harrassing sensation incident to all cases of gonorrhœa. As one patient remarked, the ease afforded allowed him to forget all about it for hours at a time, whereas, before he began to receive the treatment, it was never out of his mind while he was awake. I believe that the principal reason for this is, that it keeps the inflamed surfaces apart, preventing their continuous friction and auto-irritation. Actual pain in the urethra is also mollified by it.

The oiliness of lanolin assures its adhesion to the canal walls, even in spite of the flushing of the urethra by the stream of urine. It may be noticed floating on the urine of the second or third passage after the application. It is evident that in this respect, too, it surpasses all of the excipients named. An authority tells us that lanlin possessed antiseptic properties of no mean order.

I shall not take up more time in detailing its many advantages, which are almost self-evident.

As to the medicament employed, any remedy given in solution may be prescribed with equal propriety in lanolin. Of the various drugs which I have used, I sum up my impressions as follows: Bichloride of mercury, even in minute quantities is too painful or irritating, and frequently causes an increase in pus-formation; carbolic acid is also irritating, but not painful; iodoform might be used were it less perniciously active in its odoriferousness. The zinc preparations are applicable to the later stages, in which they give material assistance towards shortening the wind-up. Resorcin would be a most admirable remedy were it not a most aggravatingly unstable drug. If administered after it has degenerated, it will not be long ere the operator has cause to regret his ef-

forts in the way of economy. Boric acid directly following the increasing stage of the affection, seems to fulfil every indication; it is an antiseptic, a germicide, and yet has absolutely no irritating effect upon the inflamed membrane. It is capable of killing the gonococci that it reaches, and of preventing attacks from other microbes which give rise to the secondary, or mixed, infection of Bumm. And, by the way, the continuous presence of medicated lanolin forms a vigilant guard against this complication.

Agreeing then with the dictum of all authorities of the present day, that gonorrhœa is a specific disease which cannot be aborted after it is once fairly started, I conclude that

1. Our treatment should not have for its object the futile idea of jugulating the disease in its early but established stages.

2. The endeavor to control its severity, to lighten in every possible way all of its disagreeable features, to shorten its course and to ward off complications, should be our guiding principles.

3. No local agent does its share in fulfilling these indications more perfectly then does lanolin, medicated after the manner suggested.

1006 Olive Street.

MEDICAL PROGRESS.

A CONTRIBUTION TO THE HISTOLOGY OF THE CEREBRUM.—(By PROF. C. L. HERRICK, University of Cincinnati.) The striking results of recent investigations upon the physiology of various parts of the hemispheres, conflicting as they are, have given a fresh impetus to the study of the minute structure of the cortex. The interest manifested upon the subject is so wide-spread that the following notes are offered in advance of the paper in the preparation of which they were made.

In spite of the astonishing advance made during the last ten years in the knowledge of the anatomy of the brain, there remain a large number of questions of primary importance upon which nothing is known, or the testimony is so contradictory as to have value only as a stimulant to further investigation. Indeed, the most important question of all in this connection seems to have fared the worst.

The primary and permanent gain of experimental work has been the demonstration of the topographical distinctness of various motor and sensory areas in the cortex. The latest critical studies of Luciani and Seppilli leave no doubt that, however difficult or impossible it may be to sharply outline such areas, there are distinct parts of the cortex chiefly occupied with special senses and special groups of muscles.

If the occipital lobe be chiefly concerned with the function of sight and its intellectual concomitants, and the region about the crucial sulcus more particularly with the origin of voluntary motions of extremities, what more natural than to expect these areas to afford quite different histological elements to the microscope? Bevan Lewis has demonstrated that such a difference actually exists, and with masterly skill has pointed out and illustrated the characters of the motor areas. His figures of the cortex of the limbic lobe and region of the crucial sulcus are certainly beautiful, and amply reward the patience of the author. The last papers of this writer which reach us do not, however, indicate that the distinction between motor and sensory areas bears any correspondence to the facts of physiology; that is, although the presence of large ganglionic cells in motor areas and their absence elsewhere is important, it does not afford a clear idea of the direction which the stimuli pursue in being transformed from sensory to motor phases. To say the motor areas possess a five-layered cortex and the sensory a six-layered is an advance, inasmuch as we are able to distinguish microscopically the two sorts of areas and concentrate attention more closely upon the intimate structure; yet we cannot discover why a five-layered mass of cells serves the motor function better than a six-laminated cortical area; neither do we see any clue to the problem as to the way in which these areas affect each other. Moreover, the naming and numbering of cortical layers is necessarily arbitrary, and along the distinct boundaries it is impossible to sharply distinguish motor from sensory cell-chains.

Luys has positively announced a very different basis for distinguishing the sensory and motor cells. Making no topographical distinctions, he simply declares the smaller superficial cells of the cortex sensory, and the deeper ganglion cells (including the "giant cells") motor in function, somehow deriving the fibers passing to the former from the thalamus, and sending the descending processes of the latter to the corpus striatum. This has seemed to impress most critics as somewhat mythical, and really the difficulties in the way of demonstrating such minute connections seem unlikely to yield to methods like those employed by our author.

The present writer, in the midst of a series of investigations, undertaken in connection with Prof. W. G. Tight, of Denison University, upon the anatomy of the brain of rodents and lower mammals generally, has been led to believe that the attentive study of these simpler brains affords a solution of this most important problem of cerebral histology. The work is but begun, yet its results upon this point seem worthy of a preliminary abstract.

The subject chosen was the ground-hog, *Arc-*

tomys monax, while the brains of rabbits, opossums and raccoons served for comparison. The functions of the cortex were investigated by electrical stimulation and extirpation. In this way the motor centers for the fore and hind legs, the muscles of the face and neck and the sensory areas were accurately diagramed. A method used by us for the first time may be incidentally mentioned as worthy of more careful employment. As the electrodes were removed from the brain a small pasteboard or wooden peg bearing a number was inserted, and the reaction produced at this point was carefully recorded upon a diagram of the surface of the hemisphere with the corresponding number attached. After the removal of the brain these tags served to check the accuracy of the diagram and a careful drawing was made, including the areas experimented on.

The brains were placed in chromacetic solution twenty-four hours and then in alcohol, and continuous series of sections in various directions mounted in balsam. Several hundred such sections were prepared and studied by the method of geometric reconstruction from camera drawings and measurements.

To briefly summarize the facts elicited upon this point, it may first be stated that over the entire recognized motor area and along the limbic lobe, or region along the median fissure, a well-defined type of structure can be observed, while the remainder of the cortex contains an entirely different set of cells. In the motor area the cortex resembles that described by Bevan Lewis in the sheep and pig, though the minor subdivisions are less distinct. The outer neuroglia layer is followed by a zone of small pyramidal cells with a strong axial process derived from the superficial layer and fine anastamosing fibrils from the lower and blunt extremity. Below this is an indistinct layer of fusiform cells, which connect below with the "giant" or ganglion cells, which are not only more than twice as large as the other members of the series, but are nested or clustered and have peculiarities of form readily distinguishing them. The axial process is strong and may be traced upward a considerable distance. The numerous inferior processes of these giant cells connect with multipolar, parametric, or irregular cells lying upon or imbedded in the white fiber zone. Occasional anastamosing of cells of the same level can be detected, but the connection seems generally to be between cells of different orders.

Now directing our attention to the cortex in portions known to lie within the sensory area, we find an entirely different type of cell arrangement. In general, the sensory, or, preferably (not to prejudice their function), centripedal, cells receive the stain less readily and are only visible in good preparations; but distinctions based on receptivity to stain are untrustworthy. The cells of the upper zone, lying next the neuroglia layer, are nearly of the same size as those of the corresponding zone of motor areas, but are more nearly globular, possess a larger nucleus, and, in particular, *receive their axillary process from below*. Cells of this sort occupy the entire thickness of the cortex to the depth of the giant cells, the only variation observed being an increase of size downward. Corresponding to the giant cells of motor areas are large pyramidal cells, each with a slender downward projection terminating in an axillary process, while the *upper* blunt extremity gives off numbers of fine fibrils. Thus the contrast is complete, the course of the chains of cells being completely reversed, and we seem warranted in assuming that there is a similar variation in the direction of the stimuli traversing these chains.

We hasten to explain that this variety of cell which is termed centripetal is by no means limited to circumscribed areas exclusive of all centrifugal or motor chains. On the contrary, there are numerous centrifugal cells scattered in groups within the area chiefly affected by the centripetal variety, and, *per contra*, the centripetal variety is sparsely scattered among the undoubted centrifugal elements of the motor area. Nevertheless, in those areas ascertained by electrical stimulation and extirpation to be sensory the centripetal variety greatly preponderates, and in the optic centre quite excludes the other, while in the motor centres the other type occupies the prominent rôle. To carefully test this point, sections taken through an isolated motor area surrounded by a zone indifferent to the electrode were sought. Such an opportunity is afforded by the centre to the sphincters of the face, which can easily be located in rodents. This spot lies well back of the centre for the hind leg, and near the median line. The existence of a sensory centre for the *orbicularis palpebrarum* was postulated by Munk as the result of extirpation. (This area lies in what Munk would call the "independent sensory region of the eye," not seeming to recognize that there existed a true motor area for the sphincter. This latter fact appears demonstrated by our very definite results. The zone is very small and accurately defined, but its stimulation, even with a feeble current, induced violent and long contraction, not only of the *orb. palpebrarum*, but apparently of *orb. oris*. Cf. Munk: "Ueber die Functionen der Grosshionrinde," Vierte Mittheilung, p. 64.) Transverse sections passing through this centre bring out the distinction between the motor and sensory areas. In that region shown to govern the sphincter the centrifugal cells are abundant, but laterally beyond its limits the centripetal predominate.

Upon the posterior aspect of the occipital lobe motor cells are numerous, as along the limbic lobe. Near the gyrus fornicatus the centripetal type pre-

vails, and in the external part of that gyrus, but internally groups of peculiar multipolar cells traverse the cortex in all directions, requiring further study and affording evidence of the extensive disturbance due to the fold producing the ammon's horn.

One familiar with the recent literature of this subject will note that the facts here adduced correspond closely with the conclusions of the most careful experimental observers. Meynert quotes with approval Munk's conclusion "distributing sensory areas over quite the whole of the cortical surface, and therefore terming the region from the occipital lobe to near the frontal margin the 'sensory sphere' of the brain."

It is strange, however, that such distinctions as are here claimed should not have been previously noted, and this naturally will cast doubt upon these statements, which, however, can be amply supported by camera drawings or actual sections. The greater avidity with which the centrifugal cells take the stain explains why imperfect preparations demonstrate one class only, and the wide distribution of the motor type may have prevented any serious search for another structural modification.

It may be left for subsequent examination to decide what becomes of Meynert's theory that "in order to explain volition it is only necessary to postulate sensations of innervation, and tactile and pressure sensations are thought to be a means of regulating the excitation of sensations of innervation" (Meynert, "Psychiatry," p. 145). But if we can demonstrate in the cortex afferent and efferent projection systems, and distinguish the cells occupied with psycho-motor and psycho-sensory processes, certainly a great step is taken toward an intelligible construction of cerebral mechanics.

THE DRY METHOD OF WOUND TREATMENT.—In an address delivered to the German Congress of Surgeons DR. LANDERER, of Leipzig, advocated what he calls the dry method of wound treatment, consisting of the use of pieces of dry aseptic gauze in place of moist sponges and irrigating fluids in surgical operations. Pieces of this gauze are also placed on any portion of the wounded surface not under manipulation at any time during the operation, for protection and as a hæmostatic. No fluid whatsoever is permitted to come in contact with the wound at any time. He approximates the surfaces carefully by deep and superficial stitches, but uses no drainage; neither does he leave the ends of the wound open.

He is scrupulously careful in rendering the surgeon's hands and those of his assistants, the instruments and the field of operations absolutely aseptic, and keeping them so throughout the operation. He has had primary union in ninety consecutive cases, including abdominal sections, amputations of breasts, extirpations of tumors and glands, castrations, hydrocele operations, osteotomies, nerve-stretching, plastics, resections, amputations, etc. The advantages claimed for the method are: 1. The patient is not exposed to wet and cold. 2. The loss of blood is minimal. 3. Absorption of antiseptics is not possible. 4. Time of operation is decreased. 5. Rapid recovery, only one dressing being necessary, and that only if non-absorbable stitches are used. 6. Great convenience, especially for country practice. .7. Saving of surgeon's hands.—*Langenbeck's Archive für Klinische Chirurgie*, vol. 39, heft. 1.

INOCULATION OF CARCINOMA. — (Dr. Wehr. Paper read before the Eighteenth German Congress of Surgeons, published in *Langenbeck's Archive für Klinische Chirurgie*, vol. 39, heft 1.) DR. WEHR made a series of experiments upon twenty-six dogs by taking pieces of carcinoma of the vagina or penis and inoculating them subcutaneously through the shell of a trocar upon healthy animals. In most cases the nodules failed to grow, or if they grew at first they became atrophied later on; but in one animal, which was inoculated December 12, 1887, the tumors grew constantly until the animal died June 16, 1888. The autopsy showed the tissues surrounding the points of inoculation infiltrated with carcinomatous tissue, and the pelvis filled with nodules, some of which exceeding the size of a hen's egg. These tumors had occluded the urethra, causing a rupture of the bladder by overdistention, and this causing death from hæmorrhage. There were also metastases in the spleen and infected lymphatics in the chest.

SUBNITRATE OF BISMUTH IN ERYSIPELAS.—M. MARC SÉE has been using for several years a permanent antiseptic dressing of which subnitrate of bismuth is the essential element. During this time he has not seen the development of a single case of erysipelas when the dressing was used, although the surroundings of the patients were often such as to favor its appearance. In certain operations, where wounds are left which are evidently not in an aseptic condition, he abstains from the scrupulous use of antiseptic douching, and relies upon the bismuth, with which the wounds are filled, after which he applies a layer of hydrophile wadding. He has also had reason to believe that bismuth is a very useful application in cases of erysipelas already developed.—*La Semaine Méd.*, Aug. 28, 1889.

FRAULINA SCORBILIS IN DYSENTERY.—DR. APHEL employs the powder of fraulina scorbilis in doses of seven grains every two or three hours. It is indicated chiefly in adynamic forms of the disease.—*Los Avisos Sanitarios.*

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE.
PER ANNUM, IN ADVANCE.....$5.00
SINGLE COPIES.....10 CENTS.

Subscription may begin at any time. The safest mode of remittance is by bank check or postal money order, drawn to the order of THE JOURNAL. When neither is accessible, remittances may be made at the risk of the publishers, by forwarding in REGISTERED letters.

Address
JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 68 WABASH AVE.,
CHICAGO, ILLINOIS.

All members of the Association should send their Annual *Dues* to the *Treasurer*, Richard J. Dunglison, M.D., Lock Box 1274, Philadelphia, Pa.

LONDON OFFICE, 57 AND 59 LUDGATE HILL.

SATURDAY, OCTOBER 12, 1889.

THE PHYSIOLOGICAL RESISTANCE OF THE PERITONEUM TO INFECTION.

In the past year hardly a more interesting series of experiments has been made in the interest of surgical pathology than those of RINNE.[1] Practically and clinically it has been demonstrated that the peritoneal cavity under certain unknown circumstances has the power of taking care of a vast amount of filth. It remained for Rinne to harmonize observed clinical facts with *a priori* deductions.

He found that large quantities of septic material and pure cultures of pyogenic bacteria were absorbed, although injected daily into the peritoneal cavity of animals, provided that the peritoneal surfaces were uninjured. The injections produced only mild symptoms in direct proportion to the quantity of septic material used, and in no case was there more than a moderate rise of temperature. The results were very different when there were coincident defects in the peritoneum, exposing the subperitoneal connective tissue to infection. Then there invariably appeared progressive suppurative peritonitis going out from the infected connective tissue, which usually terminated fatally.

The practical import of these experiments can hardly be over-estimated. They explain why the escape of pus into the peritoneal cavity from the rupture of a pyosalpinx is not necessarily fatal if the tube is promptly extirpated, and the wound and stump properly treated. They point out that the incision is the point of greatest danger in all abdominal operations, and they would indicate that too much care can not be taken in coaptating the peritoneal edges of the wound. They explain why the removal of abdominal tumors is so much more dangerous after adhesions have taken place, because the resulting denuded places offer less resistance to the invasion of septic bacteria. They explain the success of those operators who disregard the dictations of scientific bacteriology, and also the recovery of patients after abdominal section by horned animals. They teach us to consider cautiously the evidence presented by the statistics of operators, and await the demonstration of more exact methods as to the import of their results. They warn us that clinical evidence is inadequate to overthrow the deductions of experimental physiology and pathology, and that our time is provided with methods of precision which are yet imperfectly improved. They beckon the ambitious into fields of activity and thought far less crowded, though more promising than the operating room and the dead house.

The resisting and absorptive power of the peritoneum is beyond that of any other serous cavity. This is as we should expect. The peritoneal surfaces are only a line distant from the most filthy and prolific culture medium about the body. It is connected with this seething and turbulent mass by the most active absorbent lymph channels. Doubtless it is frequently invaded by septic bacteria from the intestinal contents. From these frequent invasions an immunity has been developed which has been perpetuated and transmitted by the working of the ordinarily recognized laws of evolution.

Again we are taught to consider the causes which determine the localization of infection, as more important than the quantity and quality of infective material. Doubtless traumatism is one of the most important of these causes, but we must not forget that the depression of the general temperature of the body, the interference with nutrition, and general *malaise* frequently observed after operations, are factors which may speak for the life or death of our patient. Not only should the abdominal section be made with the greatest attention to cleanliness, but the peritoneal edges must be accurately coaptated, the operation must be done with the greatest celerity and delicacy, and depressing influences of star-

[1] F. Rinne, Langenbeck's Archiv. für klinische Chirurgie. 39 pp. 1-96.

vation, over-medication, and deprivations of every kind must be avoided if we would eliminate all those causes which determine the localization of that infection, which is still the greatest danger the operator has to meet.

HYPNOTISM IN THERAPEUTICS.

This seductive method of treatment is still on the increase. Its exponents are for the most part more enthusiastic than ever. The therapeutical practice of hypnotism is no longer circumscribed by the narrow confines of France. It has spread throughout Continental Europe. Its progress has not been stayed by that watery Gibraltar, the English Channel, but sailing across has laid hold upon the insular conservatism of Great Britain. It has reached Germany, Sweden and Russia. It has scaled the Alps from all sides and wellnigh taken Switzerland by storm. It is more popular in staid Holland than in France. America alone has thus far escaped—but we expect it soon as we do all widespread contagion. Let us see, then, to what we may look forward. Hypnotism, not long since wrested from the hands of charlatanism, is held as a trophy by the medical profession. What we know of it in this country is mainly what we have learned of its employment by Charcot in the Salpêtrière. At present, however, there are in France two schools of hypnotism—that of Nancy, with Bernheim, Liébault and Liégois as its principal champions, and that of Paris, where its practice has been developed under the influence of Charcot. The former school is by far the more radical, and its teachers claim the wider field of applicability for the method.

Nearly thirty years ago Dr. Liébault began to treat dispensary patients in Nancy by a system which he elaborated and termed "Treatment by Suggestion." In 1866 he published a book in which he gave a full description of his various methods, together with a report of cases successfully treated. Nevertheless he remained for many years a prophet without honor. In 1884 Prof. Bernheim, of Nancy, although skeptically inclined, began an investigation of the subject with the result of soon becoming a convert, and in 1884 he published his classical work, a second edition of which has recently appeared in this country, bearing the title, "Suggestive Therapeutics. A Treatise on the Nature and Uses of Hypnotism." Hitherto the English language has been practically without a literature on this subject. To Liébault is due the credit of having founded a school of practice which has found representatives throughout Europe. The interest in the entire subject, which has been gradually increasing, and which has been fostered by discussions in the medical societies of various European cities, has finally culminated in a "Congress of Hypnotism" held at Paris, where congresses of all possible descriptions have been unprecedentedly numerous of late. At this Congress the forces were marshalled under the leadership of the aforesaid schools of practice. The Nancy contingent, with its radical views, was well equipped and ably generaled by Prof. Bernheim, whose paper on the "Therapeutical Value of and the means of Inducing Hypnotism" served as a point of departure for a pretty lively dispute.

The principal differences between the two schools may be briefly explained. In the first place, the Nancy school believes that hypnotism is a physiological condition; the Paris school insists that it is a neurosis. The Nancy school thinks that pretty much all the manifestations of hypnotism are produced by suggestion and that the hypnotic state is so produced. The Paris school complains that hypnotism and suggestion are two separate things, and that Prof. Bernheim is so absorbed in *suggestion* that he has lost sight of hypnotism altogether.

These are some of the victories claimed by the champion of Nancy: Nearly all the tedious and rebellious cases of hysteria; cases of nervous anæsthesia, hyperæsthesia and amblyopia almost instantly relieved; pains from lead poisoning, neuralgia and rheumatism instantaneously or very quickly subdued; chronic rheumatic arthritis cured; pleurisy pains removed in one or several sittings; chorea quickly cured or greatly shortened in its duration; menstruation regulated, checked or made to appear at a fixed date; spinal disease ameliorated; an obstinate case of vomiting of long standing cured in two weeks; a case of cerebro-spinal sclerosis with palsy and staggering relieved for a long period; an old and most obstinate case of migraine with insomnia cured in three weeks, etc.

Charcot, however, holds very different opinions. Without wishing to deny that in cases of organic disease of the nervous system hypnotic suggestion

may, in certain cases, result in a degree of improvement, he is convinced that this occurs only by mere accident, and that, in such cases, the methods of suggestion have no claim to be regarded as therapeutical measures. On the other hand, in cases of hysteria in women and in individuals markedly susceptible to hypnotism in its stage of somnambulism, good results may reasonably be expected. As for hysteria in men, one must express one's self with greater reserve and beware of insisting upon a method which is very far from giving good results in all cases and may, indeed, produce exactly opposite effects with very disagreeable consequences. One should deal with hypnotism as with all other therapeutical measures; it has its indications and its contra-indications, and if one fails to employ it in a judicious manner the results are apt to be disastrous. Charcot's application of hypnotism has been confined to neurotic patients, and even with them he seems of late to be somewhat less enthusiastic than formerly.

It is, however, from the Nancy school that we receive the most glowing accounts of cures by hypnotism. As for the other side of the question, we hear but little from the opponents of hypnotism in France, where, if the subject is mentioned at all, it is spoken of in terms of praise.

In England a variety of opinion is expressed, much of which is favorable to the method. In connection with a paper read at the recent meeting of the British Medical Society by Dr. Voisin, of Paris, several English physicians reported successful cases, while others admitted having received a favorable impression by witnessing its action in England and France. Dr. C. L. Tuckey has also written an interesting brochure, entitled "Psycho-Therapeutics," a large part of which is taken up with an ingenious argument of inductive reasoning with a view to explaining the phenomena of hypnotism.

In Germany, although there is a growing interest manifested in the subject, there is not wanting an expression of wholesome caution and distrust, as indicated by recent expressions from writers of eminence, some of whom do not hesitate to pronounce hypnotism a very dangerous agent. Among those in Germany who are very decidedly opposed to hypnotism may be mentioned Prof. von Ziemssen, who, as the result of a series of experiments conducted by his assistants, has reached the conclusion that hypnotism exerts little or no beneficial action even in cases of slight functional disturbance, while it is positively injurious to many patients. He believes that to employ the method as a therapeutical measure in cases of slight functional disturbance is like gunning for sparrows with cannon balls for ammunition, while its repeated application is apt to convert the milder forms of hysterical manifestations into the *grande hysterie* of Charcot; in the severer forms of diseases it is a mere substitution of one form of mental disorder for another, and is akin to curing one of the morphine habit by giving him cocaine. He trusts that the good sense of the medical profession in Germany will restrain it from countenancing so dangerous a procedure.

There can be no doubt that the elements of faith and expectancy are prime factors in the solution of this problem, just as they are in the somewhat allied methods of faith cure, mind cure, prayer cure, and, may we not add, in *classical* homœopathy as well. Expectancy of cure in the mind of the patient is one of the most potent allies of therapeutics, and one which the physician ought never to disregard or underestimate. As for hypnotism itself, it will be well for all who are inclined to experiment with it to remember the failures and dangers that have already been encountered, and not blindly trust the voice of mere enthusiasm.

EDITORIAL NOTES.

HOME.

CHRONIC INVALIDISM.—An invalidism of unusual duration has appeared in the telegraphic columns of the daily press, as follows: Miss Ann Jones died recently at Jaybridge, Me., aged 87 years. She had been an invalid for seventy years and had been confined to her bed for sixty years. Her mind was clear to the last. We sometimes hear our medical friends use the careless tautology of "old chronic cases;" if it were permissible ever to use that expression it would be in such a case as this.

PRELIMINARY EXAMINATION OF STUDENTS.—The Regents of the University of the State of New York, through Professor Melvil Dewey, their Secretary, have been taking steps toward the carrying out of the law of 1889, which re-

quires certain students of medicine to pass examinations preparatory to entering upon their professional studies.

IMPROVEMENT OF JEFFERSON MEDICAL COLLEGE.—The Jefferson Medical College and Hospital at Philadelphia will soon add a building to the group already located at Tenth and Sansom streets, as the needs of the college and hospital have increased to such an extent that the Board of Trustees have found it necessary to have another building.

DR. R. A. LANCASTER, of Gainsville, Fla., has been elected President of the Alachua County Board of Health.

THE *Sanitary News* says: "The need of the times now is the thorough dissemination of the knowledge that sanitary science has made available for the promotion of the public health."

THE CHICAGO MEDICAL LIBRARY ASSOCIATION, incorporated last month for the purpose of securing and maintaining a library for the advancement of the medical and kindred sciences, held its first regular meeting on Oct. 4, at the Grand Pacific, at which the following were elected officers: President, Dr. N. S. Davis; Vice-President, Dr. Edward A. Lee; Secretary, Dr. Bayard Holmes; Treasurer, Dr. E. Ingals. Dr. William F. Smith was made a Director in place of Dr. Mary H. Thompson.

A GOOD LAW, and one which should obtain in every State in the Union, has been passed by the New York State Legislature. It reads: "Before the Regents of the University of the State of New York, or the Trustees of any Medical School or College within this State, shall confer the degree of Doctor of Medicine upon any person who has not received a Baccalaureate Degree, in course from a College or University duly authorized to confer the same, they shall require him to file with the secretary or recording officer of their University or College, a certificate showing that prior to entering upon the prescribed three years' study of medicine, he passed an examination conducted under the authority and in accordance with the rules of the Regents of the University of the State of New York, in arithmetic, grammar, geography, orthography, American history, English composition, and the elements of natural philosophy, and such certificate shall be signed by the Secretary of the Regents, and countersigned by the Principal or Commissioner conducting the examination."

HUXLEY furnishes September with a reflection having an R in it, addressed to those who have recently resumed the consumption of bivalves: "Very few persons, I suppose, imagine that when this slippery morsel glides along the palate, they are swallowing a piece of machinery far more complicated than a watch."

FOREIGN.

POST-GRADUATE INSTRUCTION IN LONDON.—In a recent number of *The Lancet* appears the announcement that an effort will be made this year to inaugurate a post-graduate course at some of the London hospitals, like the Moorfields Ophthalmic Hospital, at which there are no clinical classes. The proposed course will be entirely practical and for qualified practitioners only; it will cover three terms of eight weeks each, and the fee will be ten guineas.

DEPOPULATION OF FRANCE.—The *British Medical Journal* says: "The movement of population in France indicated by the summaries published for 1888 in the *Journal Officiel* cannot be read without regret. They are summed up pithily by M. Georges Michet in a few words: Diminution of marriages, augmentation of divorces, decrease of legitimate births, increase of illegitimate births, excess of deaths over births in forty-four departments. In 1888 only 276,848 marriages were celebrated, 6,360 less than in 1883 and 8,719 less than in the period 1847–1860. The number of divorces was 4,708, or 1,072 more than in 1887, and 1,758 more than in 1886. The number of births has considerably diminished. In 1888 there were only 882,639 births; this is a diminution of 16,749 births compared with 1887, of 41,919 compared with 1886, of 42,000 with 1885, of 55,119 with 1884. The proportion of illegitimate births, which in 1882 was 7.5 per cent., is now 8.5 per cent. It is very unequally distributed; thus, in the Department of the Seine it is 25 per cent., while in Brittany it is 2 per cent. But for the afflux of illegitimate births, the French population, says the official report, would decrease. The excess of births over deaths amongst the foreign residents in France is 11,000, one-fourth of the total excess for the whole population."

TOPICS OF THE WEEK.

MEDICAL SCHOOLS IN CANADA.

At the annual meeting of the Canadian Medical Association, held at Banff, N. W. T., August 12, 1889, the president, DR. H. P. WRIGHT, in his annual address, refers to Canadian Medical Schools as follows :

"Of our medical schools in Canada we have good reason to feel proud. They are under the care and management of thoughtful, hard-working and self-sacrificing physicians and surgeons. In most instances the teachers are necessarily active practitioners, for few in our ranks have private means, and the instructors' pecuniary rewards are but pittances. As a country we do feel proud of our schools, and, as a people, grateful to our teachers; but, we know, that as institutions they are not yet perfect. These imperfections are not faults controllable by the teachers; they are the silent appeals to the wealthy and philanthropic. To quote from Dr. Alfred L. Loomis in his magnificent address to the New York Academy last year: "Why is it that men of wealth do not realize their great opportunities for wise liberality in this direction, liberalities which will not only shed lustre upon themselves, but will mitigate the sum of human misery as certainly, and in many ways far more effectually, than our hospitals and charities for the sick and suffering poor." He blames the profession for not having tried to direct the stream of accumulated wealth in this direction, for "next to religion, education is the cornerstone of our civilization." Then, after alluding to the noble gifts recently made to some of the medical colleges, he is inspired by the hope that the stream of emotional benevolence for the sick and suffering is being turned into intellectual channels for educational needs. We have not yet to complain of emotional benevolence, as they have in the city of New York, where they have so many hospitals and dispensaries that patients are at a premium; but we know that public attention has not been sufficiently directed towards the endowment of chairs in our educational institutions, for the provision for scholarships to help on the needy and industrious student, or for the establishment of a general fund for the purpose of erecting and maintaining laboratories at different points to further original investigation and research. All these are necessary if we are to have a perfect system of medical education 'in order that those who teach may, by personal and familiar contact, gain such intimate knowledge of each student and firm control of his mental processes' as will enable them to become teachers in the good old Anglo-Saxon sense—to be educators, and not simply instructors 'pouring out their daily dole of wisdom into unreceptive ears.' "

Within the past year several strong appeals have been made through our medical press, in favor of more practical instruction, and that every student may have books in his possession giving a careful digest of the subject he is studying. The teacher's duty, in so far as the method of imparting knowledge is concerned, is changed. When books were scarce and biology was a nursling twenty or twenty-five years ago, didactic teaching was a necessity and note books were valued possessions. Now, our teachers should be expert demonstrators, appealing largely to the senses in the hospital wards and laboratories.—*Montreal Medical Journal.*

WAKEFULNESS IN NEURASTHENIA.

A wide range of opinion on the management of this condition found expression at a recent meeting of the Epidemiological Association. The use of drugs, with the exception of sulphonal, perhaps, did not find much favor with the members. Some of them had found that their patients of this class slept when they were at the seaside, while others recommended the Colorado atmosphere. Some patients had been found to be able to sleep at sea, but not on land. The weight of evidence seemed to favor the resort to mountain air for patients who were anæmic, with a presumption in favor of sea air for those who were plethoric. Dr. Solly, of Colorado Springs, has found that a large proportion of anæmic neurasthenics find sleep on the mountain heights, but this cannot be said of the entire class. It is not improbable that other conditions besides those of climate enter into the account where the patient travels from our Eastern cities to the Rocky Mountains in pursuit of sleep. The jaded matron leaves the worries of the household, and the business man, broken down by the rush of daily cares, finds many things changed besides the atmosphere among the far Western altitudes. Still, as a rule, the climate gets all the praise when an improvement takes place. Business men from the East report a larger percentage of recoveries than the matrons, however, probably because fewer of their anxieties can follow them. Improvement in the assimilation of food, it should not be forgotten, goes a great way toward sleep production in those who are affected with derangement of the nervous system; and this is one of the frequent accompaniments of any change of scene and environment. Not that there is always any marked increase of appetite or in the amount of food taken, but there is an appropriation of the food by the nervous centres, to their consequent strengthening. It is often a prominent feature in neurasthenia that the food may be taken in and digested fairly well, but stops short somewhere in its distribution to the tissues and is largely wasted. Ordinarily, when this waste ceases there is a corresponding abatement of wakefulness and other neurotic symptoms.—*New York Med. Journal.*

THE FUNCTIONS OF THE CEREBELLUM.

Is the cerebellum an organ for the storage of cerebral events which have become automatic? Do we first of all receive with the cerebral cortex and then practice with the same brain-bark, and afterward relegate to the cerebellum, as to a limbo, those things of which we are so tired of being conscious? Are all performances of the cerebral cortex conscious acts, and those of the cortex of the cerebellum unconscious? And so might questions, more or less unanswerable, be postulated without end. The functions of the little brain are scarcely known at all; even the dependence of the equilibrium on its existence may be called in question on the data supplied by

pathology. It is perfectly certain that no obvious signs of nervous disease need exist when the lateral lobes are the seat of even extensive mischief. Some regard the cerebellum as the terminal organ of all visceral sensation, and on this assumption it has been thought that the curious perturbations in visceral epilepsy are to be ascribed to perversions of the vitality of the gray matter of the little brain. Anything is possible for the cerebellum. The most gifted imagination might guess strange things, yet pathology could perhaps find exact counterparts.—*Lancet.—N. Y. Med. Journal.*

HOW THE LEPROSY BEGAN IN HAWAII.

The Hawaiian consul in London sends an interesting sketch of the history of leprosy in Hawaii and the leper's island of Molokai. The first known case of true lepra (I cannot speak as to elephantiasis) occurred, he writes, in the islands more than forty years ago.

It has been supposed to have been introduced by a Chinese; but this was never established; and it may here be remarked that the ratio of leprosy among the Chinese residents is less than that among the natives. In twenty years the disease has attacked a large proportion of the Hawaiian population. In 1865 as many of the lepers as could be induced to go were taken to a beautiful valley in the island of Molokai, not to be called, as was that of Rasselas, a "happy valley," but fertile and eminently adapted to its purpose. Before it was the ocean, and landward the plain was shut in completely by a mountain range, in which were precipices 3,000 feet high. Doubtless at first some disorder and a want of organization existed. But the Hawaiian Board of Health began its work and improved matters. Pure water was brought into the settlement from sources a mile distant in abundant quantities, and was distributed by exits in nine different situations

In the year 1873 Mr. Ragsdale, a layman, gave an example of self-sacrifice by volunteering to act as superintendent to the leper asylum. He did efficient work there, but did not live long. It is to be admitted that the housing of the sufferers was for some time bad and insufficient. Yet, in 1874, Mr. Widemann, President of the Board, asserted that, "in a material point of view, the people were better off in Molokai than most natives of the islands, and also better, with few exceptions, than they ever were in their own homes. Parcels of land and wooden houses had been bought for the increasing population, and 6,000 feet of waterpipe had been laid." Next the settlement was divided, and the two establishments of Kalawao and Kalaupapa were placed at a considerable distance from each other. In 1879 and 1880 there were in the former of these places 802 lepers, of which 458 were men and 344 were women. There has always been an excess of cases among the males. The largest number at any one time appears to have been 1,000. In the year 1874 the young Belgian priest Damien cast in his lot with that sad society, and was appointed assistant superintendent. The lepers cultivated plots of ground and occupied themselves in such manual labor as they were capable of.

The biennial grant of the government is $100,000 for Molokai and $35,000 for the establishment on the Island Oahu. There is a resident surgeon at Molokai.

The present king and queen have shown great interest in and sympathy with the lepers. Three years ago they paid a memorable visit to them, and a hymn written for the occasion by the king was sung enthusiastically by the patients. I have understood that the resident medical officer, Dr. Hoffman, is himself affected by the disorder. I will add that the ratio of deaths in a year is 58 per 1,000, and the disease runs its course after first incubation in about eleven years. I need hardly say that all kinds of remedies are being tried on the sufferers, and I must express my thanks to the English government, who procured at my request from the government of India, a large quantity of Gurjun oil, which I forwarded to Hawaii. It has been thought that this oil is the most potent agent, if not for the cure, for the restraint and alleviation of leprosy.

A LEFT LUNG WITH AN ACCESSORY LOBE.

DR. WM. A. EDWARDS, of San Diego, reports a case as follows: The lower lobe is of the usual size and formation, but the upper lobe is sub-divided at about its middle into two distinct lobes; the lower of these is remarkable in that its so-called cardiac loblet is unduly developed, encroaching upon the cardiac triangle, and removing the heart from the chest wall. The supernumerary lobe is formed altogether at the expense of the upper, which is not at all decreased in size, but is simply fissured throughout its upper segment; the increase in size is occasioned wholly by the prolongation of lung tissue above referred to. The entire lung was functionally active, and its histological character the same throughout. In 1885 Dr. Edwards reported the second case on record of an accessory lobe of the right lung. Accessory lobes of the left lung have been more frequently observed.—*Pacific Medical Journal.*

THE JOHNS HOPKINS UNIVERSITY.

PRESIDENT GILMAN has authorized the announcement that there is no foundation for the rumor that the university is in financial difficulties. The salaries of the president and professors have not been cut, and several new appointments have been made. While it is true that the income from the Baltimore and Ohio Railroad bonds has been cut off, yet there is an accumulated income from former years, the receipts from tuition average $40,000, and $108,000 is available as an emergency fund during the coming three years. Within six months the university has received $300,000, and other gifts are expected. The hospital funds are distinct from those of the university, and are so invested that the income is an assured one.

ST. JOHN'S GUILD.

The report of the past season's work by the St. John's Guild, of New York, shows that over 30,000 children and mothers were received on the floating hospital, and 1,500 sick children and others were treated at the Cedar Grove Seaside Hospital belonging to the Guild. The expenses exceeded the receipts by $3,000.

PRACTICAL NOTES.

AGARIC ACID: A NEW DRUG FOR NIGHT SWEATING.

Some years ago a substance derived from the well-known *Agaricus albus* was introduced as a sweat-checking agent in phthisis (*Practitioner*, xxix, 321). It was looked upon as an alkaloid body, and received the name of agaricine. This, however, has now been found to be an impure substance, and Professor Schmiedeberg has recently extracted from it a triatonic dibasic acid, to which the name of agaric acid has been applied. This is a white, silky, crystalline substance, scarcely soluble in cold, but readily so in boiling water. Hofmeister has recently investigated its physiological effects, and shown that its action is upon the centres in the medulla, especially the vagus and vaso motor. It possesses no mydriatic action; on the contrary, instillation of the sodium salt of the acid produces slight narrowing of the pupils, probably from mechanical irritation. The influence of the substance on the secretion of sweat is not a central one, but the result of an action on the secretory structures. Klemperer has tried it in very many cases of profuse sweating in Professor Leyden's wards. The dose given was usually $\frac{1}{6}$ gr. in pill, administered in the evening about 6 o'clock. If the action was insufficient, as many as five pills were given. In most cases the result was very satisfactory, even in those cases where atropin failed, and it was unaccompanied by any unpleasant symptoms.—*Therapeut. Monatshefte*, June, 1889; *The Practitioner*.

CARBOLIC ACID IN WHOOPING-COUGH.

DR. ROBERT LEE wishes to emphasize the fact that the proper mode of administering carbolic acid in the treatment of whooping-cough is in the form of vapor, and by inhalation; and that the only way of effectively doing this is by boiling a solution of carbolic acid in water in the proportion of 1 to 1.5 per cent. When such a solution is boiled, the vapor is found to contain the acid in the same proportion—a fact not generally known. When used in the way referred to, carbolic acid is, in the opinion of Dr. Lee, the best remedy for the relief of the cough and other laryngeal symptoms.—*Brit. Med. Journal.*

CLINICAL USES OF HYOSCINE.

MM. MAGNAN and LEFORT have been making some experiments with hyoscin prepared by Ladenburg. This drug was first used in 1880, and since then MM. Gley and Rondeau have shown how it produces mydriasis and paresis in dogs, and Dr. Mitchell Bruce (*Practitioner*, xxxvii, 321) has pointed out its calmative effects clinically, as well as the symptoms of failure of the heart and Cheyne-Stokes breathing that may be produced by doses as small as $\frac{1}{100}$ gr. MM. Magnan and Lefort have found excellent results in five minutes from $\frac{1}{60}$ gr. in acute mania. The patient loses his morbid activity and grows silent; then mydriasis and loss of power of accommodation come on, and he goes to sleep without further inconvenience for five or six hours—a better result than can be got from chloral or any other drug of the sort. It can be used in delirium tremens, in a child with severe local spasms, or as an injection of $\frac{1}{120}$ gr. in the case of an hysterical woman with profuse sweating of hands and feet, which it will check for several hours. M. Laborde has found that, with perfectly pure hyoscin hydrochlorate, doses not more than a tenth part of what MM. Magnan and Lefort had used were quite sufficient.—*Progrès Méd.*

EMMENAGOGUES AND PREGNANCY.

DR. L. ATTHILL finds that, in his own experience, some of the so-called emmenagogues are practically devoid of special action upon the uterus. For many years he has made a practice of administering ergot to patients threatened with abortion, hæmorrhage being present but uterine action not having been excited. He finds that it checks hæmorrhage without exciting undue uterine contraction, and accordingly he does not hesitate to give it to pregnant women if for any reason it seems to be indicated. He has often administered ergot before labor in cases where there is a predisposition to post-partum hæmorrhage. In none of these cases has labor set in earlier than was expected, while in two or three cases it seemed to have been delayed. From personal experience he believes that iron, quinine and strychnine can be administered to pregnant women in ordinary doses with perfect safety.—*Brit. Med. Journal.*

PEA REMOVED FROM AN EAR AFTER IT HAD BEEN THERE THIRTY-TWO YEARS.

DR. W. F. WRIGHT, of Leavenworth, reports the case of a woman, 40 years of age, from whose ear he recently removed a pea which had been there for thirty-two years. The patient herself, when a child, had introduced a pea in each ear, one of which was removed at the time. She suffered from vertigo nausea and loss of hearing in the ear which contained the pea. Since the removal of the pea hearing has been greatly improved and the other symptoms have disappeared.

PREVENTION OF TYPHOID FEVER.

With reference to a circular recently issued by the Kentucky State Board of Health, in which attention is called to the increasing prevalence of

typhoid fever, and the advice given to boil all suspected water before using it, or to guard against contamination by using properly stored cistern water, the *New Orleans Medical and Surgical Journal* takes occasion to point out the immunity from this disease enjoyed by the citizens of New Orleans. The people of New Orleans of course use cistern water, not from choice but from necessity. The editor of the journal referred to says: "As typhoid fever is mainly disseminated by drinking water, we can feel confident that this horrible disease will never become a fruitful cause of deaths here as long as we adhere to our good and much-abused method of storing drinking water." It is not denied, however, that the water supply of New Orleans contains much organic matter and myriads of algæ. Our present authority also claims that having made a virtue of necessity in using open drains instead of sewers, and thereby escaping from the dangers of sewer gases within doors, New Orleans has at last awakened to the idea that "it is as good a city (for a large city) to live in as any in the Union, provided that the plainest laws of hygeine be obeyed."

THE TIME DURING WHICH ALKALOIDS REMAIN UNALTERED IN THE BODY.

This subject has been investigated by POLLACANI (*Deutsche Med. Zeit.*) who found that no trace of digitaline or santonine could be discovered after the lapse of four months, while atropine, daturine and physostigmine could be detected thirteen months after. Of codeine a trace was still present after the latter interval. Morphine and picrotoxine could be recognized after twenty-seven months, aconitine and cicutine after thirty-four months, and veratrine after thirty-nine months. Curarine appeared unaltered after twenty-eight months; after thirty-nine months the physiological test for this substance was ineffectual, although the characteristic chemical reaction could still be called forth. The author concludes from these experiments that the vegetable poisons are not so quickly destroyed by bodily putrefaction as has been hitherto supposed.—*Druggists' Circular.*

ANTIPYRIN.

The use of antipyrin is contra-indicated:

1. In all cases of cardiac weakness.
2. In diphtherial affections in which there is evidence of myocarditic lesion.
3. After exhaustive hæmorrhages.
4. During menstruation and dysmenorrhœa.
5. In catarrhal pneumonia generally, and in lobar pneumonia when there is œdema of the lungs—heart failure.
6. In the later stages of tuberculosis.
7. In all cases of great debility and exhaustion, and in the later stages of long continued fevers.

It is believed that the foregoing contra-indications with regard to the administration of antipyrin and similar medicaments will receive the approval of physicians generally.—HUMPHREYS, in *The Practitioner.*

ETHEREAL TINCTURE OF IRON IN CHRONIC NEPHRITIS.

DR. WYSS, of Geneva speaks very highly of the ethereal tincture of iron, or Bestucheff's tincture, as it is usually called on the continent, in cases of chronic Bright's disease. Five or ten drops of this preparation in a glass of water were given to a large number of patients from three to six times daily, the result being that in more than half of the cases the albumen entirely disappeared from the urine, and the œdema and other symptoms were also cured.

RESORCIN IN ECZEMA.

DR. UNNA strongly recommends in the treatment of seborrhœal eczema an application of linen cloths soaked in solution of resorcin. His formula is resorcin and glycerine of each 10, alcohol 180, mixed and diluted with 4 parts of water. In eczema with much secretion he applies a thin layer of cotton wadding soaked in the solution, which is then covered with some waterproof material, and kept in position with a bandage.

GURJUN OIL IN LEPROSY.

A systematic trial of the gurjun oil treatment, from which Father Damien and several members of his afflicted flock at Molokai are said to have derived benefit, is now being made at the leper hospital at Agra. Six typical cases have been selected, and the results are being closely watched by the medical officers of the hospital. Their report will be looked forward to with interest.

THE GLYCERINE TAMPON IN THE VOMITING OF PREGNANCY.

DR. S. B. KIRKPATRICK blistered the cervix in an obstinate case of vomiting in a pregnant patient, and observing that the patient was not relieved until the serum was formed and discharged, conceived the idea of procuring a watery discharge by the use of glycerine. He accordingly inserted into the vagina a tampon saturated with glycerine. The distressing symptom was at once removed and, on its return at intervals, was always relieved by the glycerine tampon.—*Texas Com. Rec.*

SOCIETY PROCEEDINGS.

Medical Society of Virginia.

FIRST DAY—TUESDAY, SEPT. 3, 1889.

The twentieth annual session of the Medical Society of Virginia convened in Roanoke, Va., at 8 P.M. Tuesday, September 3, 1889, the President, Dr. E. W. Row, of Orange, Va., in the chair. The address of welcome was delivered by Dr. A. Z. Koiner, chairman of the local committee of arrangements; Dr. Thomas J. Moore, of Richmond, Va., delivered the annual address, selecting as his subject, *Man and His Development.*

SECOND DAY—WEDNESDAY, SEPT. 4.

DR. JOHN A. WYETH, of New York, read a paper on

THE STATUS OF COCAINE IN SURGERY.

After a note or two on the history of cocaine as a surgical anæsthetic, in which he accords to Dr. Karl Koller, of New York City, the credit due for its introduction in eye surgery, and to Dr. J. Leonard Corning, of New York City, the credit for its practical application to other surgical purposes than anæsthesia for eye surgery, he remarked first upon its dangers, due to idiosyncrasy, etc. Its dosage is uncertain, differing widely not only in different individuals, but in the same individual at different times. The general rule should be to begin with the minimum dose, gradually increasing it, always watching the pulse, face, respiration and pupil. In small doses it increases the number of respirations and is a cardiac stimulant; in large doses it arrests the heart in diastole and the action of the respiratory muscles. Cocaine is never applicable to children under 10 or 12 years of age. In his several hundred applications in adults, in all parts of the body, he has several times observed pallor of the face and fainting, but due, most probably, to the patients being overcome by the sight of blood, etc. In some, however, it was due to absorption of the drug. Exhilaration is not an uncommon symptom, and in rare cases it increases to boisterousness. In one instance convulsive movements occurred, episthotonos being rather well marked. In another case a convulsion occurred fourteen hours after a gradual injection of 30 minims of a 4 per cent. solution of cocaine (gr. jss). In many cases, when not applied about the eye, dilatation of the pupil occurs, indicating absorption by the blood. For hypodermic purposes he uses 20 grains of cocaine and 3 grains of boracic acid, dissolved in an ounce of distilled water—approximately a 4 per cent. solution. A stronger aseptic solution is equal parts of distilled water and saturated solution of salicylic acid. Always dissolve cocaine in water free from lime.

Following these general considerations Dr. Wyeth gave interesting specific directions for the employment of cocaine in various operations of minor surgery, including amputation of the fingers, incision of felons, removal of finger nails and tumors, and operations about the eye, mouth, nose, urethra, anus, scrotum, etc.

DR. HUNTER MCGUIRE, of Richmond, Va., said that he did not think that Dr. Wyeth had dwelt sufficiently on the dangers of cocaine. He had used this remarkable agent almost every day for the past five years, but he had come very near killing one or two patients with it—so uncertain is its paralyzing effect in some cases, which cases cannot be foretold until the danger is recognized to be at hand. He had read that Dr. Sims had injected a few minims of a 20 per cent. solution of cocaine muriate into the male urethra, and in twenty minutes his patient was dead. Dr. McGuire said that he had cocainized a great many children without observing the very serious effects referred to by Dr. Wyeth; in fact they seem to stand cocaine as they do chloroform anæsthesia—very well. But there are objections to cocaine. Undoubtedly it interferes with the repair of wounds by the first intention. Another thing—during the session of this society two years ago, in Richmond, he heard a distinguished authority in such matters, then a resident of New York City, affirm that a cocaine habit, in the sense in which the term habit is applied to the whisky habit, the morphia habit, etc., could not be established. But he is certain he has seen a case or two of the *cocaine habit* in patients who have come under his care.

DR. WYETH remarked, in reply, that he endorsed everything that Dr. McGuire had said—in fact the dangers of the indiscriminate use of cocaine are very considerable. He did not mean to imply the idea in his paper that the danger of cocaine, when used with children, was in the drug itself, but in the imperfect manner in which it is generally administered to them, because of their struggling to resist its administration, and the peculiar sensation, or loss of sensation, in the part which frightens them.

MEDICAL REFORMS, WITH SPECIAL REFERENCE TO THE PROFESSION OF VIRGINIA,

was the subject of the address by the President, DR. E. W. ROW, of Orange, Va. He advocated the establishment of a State General Hospital, to be sustained by the State, just as are the asylums; that matters of professional interest connected with the management of such an institution should be placed under the control or direction of the Medical Society of Virginia. In other words, he thought that the medical affairs of the State should be directed by the medical men of the

commonwealth, just as are the legal affairs by the legal men, etc. The medical profession has shown its ability to manage such matters as belong to it, as evidenced by the excellent work done by the Medical Examining Board of Virginia—the creature of this society. The insane hospitals and like institutions should be more directly under the supervision of this society, so far as the medical affairs connected with them are concerned. It is the duty of this society at this time to put itself to work to secure for the State Board of Health an annual appropriation from the State sufficient to pay all of its necessary expenses, it appearing that the law establishing the Board, some seventeen years ago, being altogether satisfactory, with the exception that the law very foolishly concludes with some such proviso as, "provided the said Board of Health shall not be an expense upon the State."

The next order of business was the discussion of the selected subject,

CROUPOUS PNEUMONIA.

The appointed leader, DR. B. L. WINSTON, of Hanover, Va., stated that he would confine his remarks to uncomplicated cases of the disease. The *diagnosis* is not difficult, although sometimes the disease escapes detection unless resort is had to the physical signs. Pain is probably never present unless more or less pleurisy complicates the pneumonia. Rusty colored sputa, though pathognomonic when seen, does not by any means occur in the majority of cases, according to his experience; and on this point he thinks the text-books should be corrected. The *causes* may be classed as either specific, exciting, or predisposing. The view that pneumonia is due to a specific organism does not meet with common approval. Dr. Winston thinks that pneumonia is not simply a local inflammation of the lung, but that this is but an expression of a general disease, and that the pneumonia deserves no higher classification than the intestinal ulcers of typhoid fever. Croupous pneumonia is not produced by extension of inflammation, but in such cases lobular pneumonia is the result. It is not produced by inhaling irritating gases, nor by traumatism, nor by "cold," as are other inflammations of the air passages. It is a self-limited disease and frequently occurs as an epidemic. The common asthmatic tendency cannot be due to the height of the fever, nor to cardiac weakness, nor to the amount of lung consolidated (for the amount invaded is often very small). It is, at least, certain that the cardiac failure in no way corresponds with the severity of the other symptoms. It seems to the speaker that the tendency to heart failure, which is the most alarming symptom in uncomplicated cases, is due to a morbific agent acting on the nerve centres. But the exact cause of croupous pneumonia is a subject for further investigation. The germ theory may or may not be true. The *predisposing* causes are age (under 60), the male sex, the negro race, certain diseases, as typhoid fever, winter and spring seasons, etc. The *exciting* causes are, in general, such things as tend to lower the vital powers, as exposure to inclement weather, insufficient clothing, neglecting the wearing of flannel winter and spring, etc. It is more common south than north, pneumonia being almost unknown in the frigid zone. During the winter and spring almost every article of food has the stamp of age upon it, and it seems more probable that the character of the food then taken, when the vital powers are at their lowest, contribute most largely to the development of the disease. As to *treatment*, most every drug has been tried; yet the mortality among adults is second only to that from consumption. Marayliona abstracts from five to ten ounces of blood on the fourth or fifth day, when the heart is on the eve of being overpowered by the pneumonic toxic matter; but Dr. Winston thinks stronger evidence needed to justify resort to such bleeding on such occasions, although there may be occasionally times when some venesection is useful. He also thinks large blisters of doubtful propriety, although he has seen blisters relieve pain. Calomel has no place in the treatment of croupous pneumonia; aconite in the commencement, and quinine, given early as an abortive, may be useful; but he has gotten the best results when he has given the least medicine. Hot poultices, opium to relieve pain, stimulants when needed, food, hygienic measures, and, above all, skillful nursing, will be all that can be done in uncomplicated cases.

DR. H. C. BECKETT, of Scottsburg, Va., also read a paper on the subject. The specific cause of croupous pneumonia is undetermined. No age has either a notable proclivity to the disease, nor is any age exempt. It is perhaps most frequent between the ages of 20 and 40, and after 60. In adult life it occurs in males three times as often as in females; in females it occurs most frequently at the catamenial periods. Outdoor laborers are more liable than indoor workers. Habitual alcoholic drinkers, malarial subjects, convalescents from severe acute diseases, etc., are most liable to the disease. Erysipelas, measles, diphtheria, small-pox, etc., are predisposing causes. Traumatism, especially in the aged, a previous attack of pneumonia, are also predisposing causes. It often prevails as an epidemic in the mountainous regions of the South. The first five months of the year are its season. Thus it is seen that all things predispose to pneumonia that depress vital action. Dr. Shaw, of St. Louis, believes that perturbations of the vaso-motor centre in the medulla causes pneumonia by impressions conveyed through nerves connecting this centre with the stomach. As to *treatment*, use stimulants or

depressants, as required. If both lungs are involved, so as to leave little breathing surface, bleed. In such cases venesection affords immediate and remarkable relief. Large hot poultices over the lungs reduce blood pressure, while the heat stimulates the heart. Aconite is preferable to veratrum; but he prefers antifebrin as the antipyretic, to be followed by quinia, which latter he considers the sheet anchor in pneumonia. He usually prescribes 5 grains every four hours until the fever breaks. In the second and third stages he generally combines ammonia, carbonate and digitalis. The early exhibition of a large dose of calomel is useful. Opium is useful to allay pain and restlessness. Expectorants have no place in the treatment of pneumonia. Blisters at the beginning of the third stage hasten resolution. Alcohol is essential as a food and to sustain the heart. Many believe that the disease is contagious, and that four days is the period of incubation.

Dr. Lewis G. Pedigo, of Roanoke, Va., read a paper entitled,

SEDATIVE DOSES OF CALOMEL IN ACUTE CROUPOUS PNEUMONIA.

He stated that the title of his paper referred to doses of 30 grains and upwards. He gave a history of the use of this treatment in various acute diseases by a few members of the profession for years past, and then explained the method of administering the drug in this treatment. He reviewed the condition of the secretions and the various indications of treatment in pneumonia, gave a systematic and detailed account of the numerous and apparently diverse effects of the large doses of calomel, classified these effects, and showed how they were all dependent on two general principles, namely, stimulation of the secretions, and sedative influence on the nerves. He argued the adaptability of these effects to the chief indications in pneumonia. The entire paper was based on clinical experiences, and one case was briefly reported to illustrate the treatment advocated. The important effects claimed were the promotion of the salivary, gastric, hepatic and intestinal secretions, and unloading of the portal circulation (followed by improved digestion and assimilation), increased and improved action of the kidneys and skin, loosening of the bronchial and pulmonary secretions, relief of cough, lowering of temperature, and promotion of sleep.

Honorary Fellow, Dr. Bedford Brown, of Alexandria, Va., gave a

RÉSUMÉ OF HIS PERSONAL EXPERIENCE OF FORTY-ONE YEARS IN THE TREATMENT OF CROUPOUS PNEUMONIA.

During this period of time, he has seen four or five different methods of treatment adopted and practiced, and finally discarded. First, as to the depletory plan, at first it was used in every case; then only in certain cases, and finally it was entirely discarded. Then came the mercurial plan, in which calomel in small doses, with Dover's powder, with mercurial inunction, were used until ptyalism occurred. The great majority of cases recovered under this treatment. Then followed the sedative treatment, consisting of the use of veratrum viride, aconite, and ultimately digitalis. The sedative treatment of Norwood gave birth to all of our subsequent ideas of sedation. This was an advance on the pure depletory treatment, and resulted in real good. Then again came the stimulant treatment. This was a still further advance, and has brought more and better fruits than any other single treatment. While this also may be modified and combined with elements of other treatments with advantage. Dr. Brown has not derived benefit from the pure antipyretic treatment. He has, in former years, seen much of the epidemic forms of typhoid pneumonia, with a tendency to collapse which was constant and great. In this form he has used large quantities of whisky—a quart per diem—carbonate of ammonia, tincture of nux vomica, and chloroform internally. In this form he has also used, in connection with stimulants, solution of the acetate of ammonia, tincture of nux vomica, tincture of chloride of iron, with benefit. Dr. Brown does not think, from his long experience, that adherence to any one single routine treatment exclusively will give as good results as the mixed treatment, combining some of the good features of all; but never forget the value of stimulants and nourishment. He has seen cases of pneumonia with slight fever, slow pulse, moderately excited respiration, etc., recover without medication.

Dr. J. H. Neff, of Harrisonburg, Va., said that croupous pneumonia is a disease of specific origin, running a regular course; but no one knows the exact character of this poison. He has always believed that it was not a purely local disease, but a systemic disease of specific origin, having its local manifestation in the inflammation of the lung. It prevails mostly in populous districts, especially as one approaches the tropics. He agrees with Dr. Winston as to the exciting causes. The predisposing causes are to be found in the constitution of the patient and season of the year. The disease being of a specific character, must run its course, and therefore he has had no faith in any abortive plan of treatment. A great many cases run their course to recovery without any treatment whatever, other than the ordinary attentions of humanity. He has seen antipyrin do just as much in curing pneumonia as calomel. In children, he always uses a light flannel jacket, lined inside with oil silk. He never gives a dose of calomel now. He does not condemn the use of aconite or veratrum viride;

but he finds good diet, etc., a much better class of remedies. It is of the first importance to sustain the strength of the patient, and especially his heart.

Fraternal Delegate, DR. J. G. WILTSHIRE, of Baltimore, Md., said that studying the subject of croupous pneumonia after Lépine, Sévestre, Charcot, etc., one must accept the theory that it finds its origin in a specific pathogenic germ; yet it cannot be denied that there are certain meteorological conditions that stand in a strong causative relation to its production—it occurring more frequently in low temperature—one acting as a specific, the other as an exciting cause. We are constantly exposed to the invasion of the pneumococci; but for the want of the necessary conditions to render the mucous membrane of the lung a suitable soil for their culture and growth, it is able to resist them for a time, only to yield when such exciting causes as cold and traumatism supplement the specific influence of the germ. Apropos of the theory that the pneumococci have other habitats than the lungs, he called attention to the study of Sévestre of an epidemic of broncho-pneumonia, complicating cholera infantum and other enteric troubles, in which he found the microbes of pneumonia in the intestinal tract, whence they were carried to the lungs by the lymph channels. The treatment of croupous pneumonia calls for heart sedatives, heat and moisture in the form of hot cloths; these, if used in the first stage, may abort the disease. Should it, however, pass into the stage of red hepatization, a supporting and stimulating plan should take the place of sedative one. Watch the temperature and heart as closely as the powers of the patient. Alcohol is important in the second and third stages. Quinine and antipyrin, when used together, are the best antipyretics. They not only reduce the temperature, but preserve the powers of the heart. Carbonate of ammonia does the twofold work of aiding in liquefying and expectorating the fibrinous deposit, and keeping the heart's force up.

DR. HENRY M. PATTERSON, of Staunton, Va., remarked that if this is a specific disease, the treatment given has certainly been at variance with this idea. He does not believe that it is simple hyperæmia of the lung. The gravity of the attack depends on the amount of exudation. How to remove the engorgement is the question. At this period is the time to abort the disease if possible. He may be ranked as behind the times; but his success with the lancet now is just as good as it was when he began practice in 1851; and that success is just as good as is that by other plans of treatment now in vogue. He gives alcohol in the second stage in almost every case, both for its food and stimulant qualities. He has had some remarkably satisfactory results from ergot.

DR. HENRY V. GRAY, of Roanoke, Va., said that the important question is, What produces the great depression of the system in cases of croupous pneumonia? If due to exudation in the alveoli, that condition needs prompt attention.

DR. GEORGE TUCKER HARRISON, of New York, N. Y., read an elaborate Memoir of the late Dr. James L. Cabell, of the University of Virginia, which was ordered to be incorporated in the Report of the Necrological Committee.

DR. E. T. BRADY, of the Southwestern Lunatic Asylum, at Marion, Va., read a paper entitled:

MENTAL ACTION—MATERIAL ACTION.

The Doctor stated that he would treat the title as a fact considering it established by the following three propositions:

1. That mental impressions involuntarily originate physical action, and that material impressions give rise to this involutary mental action.

2. That loss of cerebral substance is followed by loss of physical or expressional function, and that disuse of mental function is followed by a corresponding atrophy of cerebral substance.

3. That abnormalities of organic function, have as their sequence, abnormal ideation.

He devoted his paper to the support of these propositions. In support of the first proposition, he cited the phenomena of sweating, nausea and vomiting from fright—the quickened circulation and blushing of the lover or of wounded modesty, the flow of tears and gestures of grief, joy, etc., changes in expression and movement, in a dreaming sleeper, consciousness of the presence of a limb, as evidenced by sensations referred to a limb after amputation, claiming that such sensations are not imaginary, but the outward projection of a previously stored impression; also claiming that all reflex action is evidence of material impression as the cause of mental action.

In support of the second proposition, he presented the records, clinical and post-mortem, of several cases, and cited the advances in cerebral localization and microscopic pathology. He incidentally recommended the adoption of vivisectional experimentation as the means of executing the death penalty upon criminals. In support of the third proposition, he referred to what had been advanced under the other headings, calling attention to the gradual and simultaneous decline of the cerebral and mental powers in diseases of the brain and cord.

The *Report on Materia Medica and Therapeutics* was presented by DR. WILLIAM E. COOPER, of Woodville, Va. From the phenol group comes *Phenacetine-Bayer*, a tasteless powder, freely soluble in alcohol, less so in glycerin, and still less so in water. It is a non-toxic, reliable, antipyretic and antineuralgic. The usual dose of 7.5 grains lowers the temperature from 1.8° to 3.6° F. for hours. It is best given in powders or soluble

pills. *Sulfonal-Bayer* promptly causes natural sleep in from half an hour to two hours of several hours' duration, in doses of 15 to 45 grains. It does not act unfavorably upon the heart, respiration, temperature or digestion. It creates no desire to increase the dose. It is given in a wafer, or it may be dissolved in soup or tea. *Amylene hydrate*, an insomer of amylic alcohol, is physiologically ranked between chloral and paraldehyde. It is a colorless, slightly oily liquid, boils at 102.5° C.; sp. gr. 0.81. It is freely soluble in alcohol, but requires eight parts of water. It is given with extract of licorice, or in red wine and sugar. In doses of from 50 to 75 grains it causes neither nausea, headache, indigestion, nor other unpleasant after effect; but more frequently than other hypnotics, it induces refreshing sleep. *Methylal* is a new hypnotic, is soluble in water, rapidly eliminated, and leaves no ill effects. Dose 3 to 5 grams. *Salufer* (neutral sodium silicofluoride), requires 1 ounce of water to dissolve 2½ grains, it is a powerful unirritating surgical antiseptic. For ordinary uses a grain is dissolved in an ounce of water to syringe out cavities, etc. It corrodes steel, but does not affect sponges. *Guaiacol*, an ether, derived from beechwood creosote, is a colorless liquid, of aromatic odor, slightly soluble in water, but readily so in alcohol and fixed oils. It is used by inhalations or in doses of a half to one minim, several times daily in consumption. The solution should be kept in colored bottles.

Third Day—Thursday, September 5.

Dr. R. S. Martin, reporter on Section of Obstetrics and Diseases of Women and Children, read a paper on

Advances of Diseases of Women.

Massage (Brandt's method) is reported to be practised with great success by Dr. Boldt, of New York, in the following conditions: Chronic and subacute para- and peri-metritis; all non-acute inflammatory uterine diseases; chronic and subacute oöphoritis; catarrhal salpingitis; all uterine displacements, with or without adhesions, unless dilated tubes are present; rectocele and cystocele; uterine hæmorrhages, not dependent on neoplasms; incontinence of urine dependent on relaxation of the visceral sphincter; hematocele; floating kidney, and prolapsus recti. It is contra-indicated, according to some, in all acute inflammatory processes; dilated tubes, and in all conditions where suppuration is suspected. This treatment is not useful in patients with very fat abdominal walls. The séances vary from three minutes to a quarter of an hour.

Dr. Martin exhibited a *Outerbridge dilator*—an ingenious instrument, which acts also as a drainage tube. In sterility dependent on stenosis this introduced five or six days before menstruation into the contracted cervix uteri and allowed to remain. It is also of value in sterility, due to flexions. For full description see *Medical Record*, April 20, 1889. *Electricity* holds a high place in the treatment of carefully selected cases. Engelmann uses galvanism for inflammatory products which admit of restitution, indurations, deposits due to interstitial inflammation, certain neoplasms. Davis, of Birmingham, Ala., uses faradisms for subinvoluted uteri. It is useful in many cases of retroversion, many so-called pelvic inflammations, in amenorrhœa due to atrophy of the uterus, and in menorrhœa due to relaxation of the muscles. Many think electricity, after Apostolli's method, important for uterine fibroids; but the dangers of sepsis must be guarded against. Some think electrolysis of fibroids uncertain.

For *carcinorna uteri* Brown uses the curette freely and applies, on a tampon, a saturated solution of zinc chloride. Mundé uses a weak solution of sesquichloride of iron. Schramm injects half to one grain in an ounce solution of corrosive sublimate into the diseased mass two or three times a week, causing cessation of fetor and purulent discharges, and lessening the frequency of hæmorrhages. The feeble absorptive power of the degenerated tissue offers immunity from mercurial poisoning. The following is an antiseptic and sedative suppository extensively used in Paris:

℞.	Iodoformi	gr. xv.
	Camphoræ	gr. jv.
	Ext. belladonnæ	gr. j.
	Ol. theobromæ	q. s.
ℳ	Make one suppository.	
S.	Put high up in vagina at night.	

High amputation of the cervix is advisable if the disease has not passed beyond the internal os. If disease has not extended beyond the uterus, hysterectomy is advised. As to *uterine fibroids*, Coe scrapes away the hypertrophied muscosa. *Vaginal hysterectomy* has been done successfully. During 1888, abdominal hysterectomy was done 43 times with only 9 deaths. *Uterine anteversions and flexions* are but rarely congenital, but results of previous para-metritis. Use antisepticized laminaria tents to soften the tissue, and render intra-uterine treatment more thorough. Use preliminary course of hot douches and glycerine tampons, then straighten the uterus bimanually, and hold in place by a pessary or intra-uterine stem. Dilatation with bougies and the persistent use of hot water, will usually effect a cure. Goodell advocates thorough dilatation with steel branched dilators, when dysmenorrhœa is a prominent symptom. Wylie condemns pessaries, but dilates rapidly under thorough antisepsis. *Alexander's operation* for shortening the round ligament has grown in favor. Mundé reports 23 cases with excellent results. Kellogg reports 65 successes out of 69 operations.

Schucking has devised and practiced successfully *vaginal suture of the uterus* in 18 cases for radical cure of retroflexed or prolapsed uterus. Hysterorrhaphy finds favor in Germany, where prejudice exists against Alexander's operation. A case of *lacerated cervix* operated on by the reporter in May, 1886, was delivered of twins, each weighing eight pounds, in July, 1889, without further laceration. Herrick pares the lips and holds them in apposition, not by sutures, but by an elastic band shaped like the cervix, large enough to cover the whole os and cervix, with a small hole in the band to allow the secretions to pass. Dr. T. Gaillard Thomas does not claim that operations for diseases of women are especially liable to *insanity*, but mentions six very significant cases, in none of which were the kidneys at fault, nor could the sequel be charged to iodoform poisoning.

REPORT ON ADVANCES IN OBSTETRICS.

The reporter, DR. CHAS. W. PRITCHETT, of Keeling, Va., first spoke of *Vomiting of Pregnancy*. Hewitt analyzes fifty selected cases, and contends that these cases confirm his opinions; that the vomiting of pregnancy is in most all cases associated with and dependent on uterine displacement, and thickening or induration of the cervix. Gill Wylie attributes it largely to induration of the cervix. Jaggard ascribes it to endometritis gravidarum. *Treatment.* — Gunther, of Montreaux, advises galvanism. Green reports cases cured by chloride of sodium. Collins and William Duncan report cases cured by the application of 10 per cent. solution of cocaine to the vagina and cervix. Rose recommends rectal injection of carbonic acid. *Anæsthetics.*— Recent writers accord antipyrin a very high place in the first stage of labor—relieving pain and fatigue while the uterine contractions are not interfered with. Chloroform holds its own in the second stage of labor. Budin advises chloroform only to dull pain and not to complete anæsthesia, unless to perform an operation more severe than the application of the forceps. Swieicki, of Posen, has used a mixture of nitrous oxide and oxygen in the proportion of 4 to 1. Winckel regards the mixture as harmless and especially useful in cases of elderly primiparæ. Hypnotism is a failure as an obstetric anæsthetic. *Antiseptics.*—The comparative results in hospitals in which antiseptics are used and of those in which they are not, are sufficient to show their great value in reducing the mortality of the lying-in chamber. Corrosive sublimate in weak solutions and in skilful hands is still the queen of antiseptics and germicides. *Eclampsia.*—There is yet considerable discord as to the cause and treatment of puerperal convulsions. Santos believes that the albuminuria is the result of reflex irritation of the sympathetic and renal nerves by the enlargement and, later on, the contraction and retraction of the uterus. Lusk says albuminuria is caused by renal insufficiency, and is not the cause of the convulsions. Paget denies the dependence of eclampsia on albuminuria, but attributes it to a reflex cause. *Mastitis.*—According to Richardson this is the result of septic infection, and he urges that the child's mouth be kept perfectly clean and the nipple well washed with antiseptics. Monti advises that the fissures of the nipple be painted with a solution of gutta-percha in chloroform. *Puerperal septicæmia.*—It is disputed whether this disease is dependent on one or more organisms. Vidal claims that there are at least two, and that there is no characteristic difference between the germs of puerperal septicæmia and erysipelas. Gusserow denies their identity and insists that erysipelas cannot cause puerperal septicæmia. Doyon says they are one and the same. Others assert that puerperal septicæmia is of an erysipelatous nature and the fever typical of erysipelas.

REPORT ON ADVANCES IN DISEASES OF CHILDREN.

The reporter, DR. A. S. PRIDDY, of Keysville, Va., has not found any material advance except in diseases of the alimentary canal. The researches of Holt, Escherich and others with reference to *intestinal bacteria* were summarized with the deduction that three facts must be kept in mind in studying the effects of microörganisms upon the human system: the nature of the organisms, the dose and numbers in which they enter, and the susceptibility of the patient. The two varieties of bacteria which have been isolated and studied in the intestines of young children are the bacterium lactis aerogenes (found in the upper portion of the small intestine), and the bacterium coli commune. The first decomposes milk sugar, with the development of lactic or acetic acid, to which the acidity of the intestine is due. After a full review of the subjects involved, the lessons are drawn that the infant must not be overfed, and that the milk (in bottle-fed cases) should be sterilized, and the vessels themselves that hold the milk should also be sterilized. *Milk was first sterilized for food* in Munich, 1886. Dr. Caillé, of New York, introduced sterilized milk as an artificial food into this country in 1888, and the results have been favorably received. It remains sweet for six weeks, while boiled milk can be kept only four or five days even on ice. *Stomach washing* for gastro-intestinal disease, first used in Prague in 1880, satisfactorily introduced by Seibert in New York in 1888, is especially serviceable in dyspeptic disorders attended with regurgitation of food, in cholera infantum, etc. Pass a long, soft, velvet-eyed rubber catheter attached to a fountain syringe, through the pharynx into the stomach; pour in a cupful of warm water, while the child is in the upright position. Then tilt the child forwards, and the water returns

through the catheter. For *intestinal irrigation*, pass a Nélaton soft rubber catheter (with a hole in the end instead of at the side) some 8 or 10 inches into the bowel. Through this catheter, attached to a fountain syringe, pass a quart or two of warm water containing 1 drachm of sodium salicylate to the pint of water. Though the treatment is not new, it is only during the past two years that it has become popular in this country—chiefly through the reports of Dr. Booker, of Dr. H. P. Wilson's Sanitarium, of Baltimore. It is useful in dysentery, gastro-enteric catarrh, acute and follicular enteritis, etc. Dr. Priddy has used the treatment successfully in a number of cases of gastro-enteric catarrh, dysentery, etc., relieving the nausea, vomiting, tenesmus, etc., and curing his patients.

Honorary Fellow, DR. GEORGE TUCKER HARRISON, of New York, read

A FURTHER CONTRIBUTION TO THE STUDY OF THE ETIOLOGY AND PROPHYLAXIS OF PUERPERAL SEPTIC INFECTION.

The doctrine of auto-infection, which has recently been brought into great prominence, and the industrious researches of the bacteriologists, with the practical deductions from them, have divided obstetricians into two parties diametrically opposed to each other. The one side attaches all importance to the disinfection of the obstetrician (Mermann's subjective infection); the other regards it as a matter of necessity to subject the parturient woman, in a greater or less degree, to antiseptic measures (objective antisepsis). The writer took the ground of those who advocate the paramount importance of subjective antisepsis, in the paper read before this society in 1885, and has had no reason to change his ground. Of course this position does not exclude the thorough cleansing and disinfection of the external genitals. The views of Kaltenbach were quoted, who insists upon it that an obstetrician, even with clean hands, can induce infectious forms of disease. He believes that, as the surgeon disinfects his field of operation, so must the obstetrician disinfect the parturient canal, as well as the vicinity. Winter (*Zeitschrift f. Gyn.*, etc.), as the result of bacterial investigation, draws the inference that it is necessary to disinfect the cervix and vagina to avoid auto-infection. Steffeck and Dolderlein arrive at the same conclusion. The writer believes that if the demands made by the bacteriologists should be generally acceded to, and it should become a universally accepted rule of practice that the cervix and vagina of every parturient woman should be subjected to thorough and energetic disinfection, an immense amount of injury would be inflicted. These disinfective procedures deprive the vagina of its physiological mucus, and render it more vulnerable. It becomes more liable to the attack of infective germs. Moreover, labor is mechanically retarded when the vagina lacks its normal mucus, nor must it be left out of mind that disinfection of the vagina and cervix is a painful manipulation. Probably the most serious objection which can be urged against the auto-infection doctrine is that it diminishes the personal responsibility of the obstetrician, and that wholesome dread of infection disappears, which every one should have who examines a parturient woman. The distinction was made between septic infection and putrid intoxication. Cases of so-called auto-infection are really cases of ptomaine intoxication. The microörganisms of septic infection are streptococci. According to Bumm, the streptococci of erysipelas and phlegmonous inflammations are identical. Bumm's careful and exact bacteriological studies lend no countenance to the doctrine of auto-infection. Leopold's clinical experience is very striking. Of 150 women treated without vaginal douches, only nine had slight febrile phenomena. When the cervix and vagina were disinfected, there was a marked rise of morbidity. The doctrine of auto-infection is a retrograde movement, and tends to imperil our present attainments in the prophylaxis of septic infection.

(*To be concluded.*)

FOREIGN CORRESPONDENCE.

LETTER FROM LONDON.

(FROM OUR OWN CORRESPONDENT.)

Tetanus as an Infectious Disease—The Scottish System of Admitting Voluntary Patients into Lunatic Asylums—The Microscopic Examination of Urinary Deposits—The Antiseptic Power of Hydronaphthol—Miscellaneous Notes.

Tetanus as an infectious disease is now attracting a great deal of attention. At a recent medical meeting a member dwelt upon the virulence of the soil when contaminated by the dejections of tetanic horses. He insisted upon the frequency of tetanus in wounds of the lower extremities. Thus, in Havana, it was stated, out of 162 patients suffering from tetanus 132 had contracted it from wounds of the legs and feet. The disease is frequent in persons who after being wounded get in contact with the soil, as in the cases of comminuted fracture, in which the bones are forced into the ground, and crushing of the bare feet, also when the injury is inflicted with an agricultural instrument. Experiments made with pure soil and with a soil known to be impregnated strongly support this view. Certain soils seem to preserve their virulence much longer than others, and stagnant water has been found to favor the proliferation of the microbe.

The Scottish system of admitting voluntary patients into lunatic asylums appears to work very satisfactorily. Last year the number of such patients was fifty-five. They are described as persons whose mental condition is not such as to render it legal to grant certificates in their case, yet they are necessarily sufferers who are sufficiently conscious of their own condition to feel the need of restraint. Unlike our habitual drunkards who place themselves in "Retreats," they cannot be detained for more than three days after giving notice to leave if they persist in that desire, and it appears that they are not registered as lunatics. At the visits of the Medical Commissioners to asylums all voluntary inmates are seen, and they have then an opportunity of making statements in regard to their position. Where there is reason to suppose that they fail to understand the conditions of their residence, it becomes the duty of the official visitors to explain. The Scottish Commissioners in Lunacy state that for some years past nothing has occurred to shake their faith in the advantages of the system or of the law under which it is regulated.

A good suggestion has been made with regard to the microscopic examination of urinary deposits. In order to examine these deposits, it is necessary to allow the liquid to remain quiet for some time. In hot weather the urine is liable to undergo decomposition during this time, and to avoid this it is proposed to add a solution of boric acid and borax. This solution is obtained by adding to a 12 per cent. solution of borax another 12 per cent. of boric acid and filtering while the liquid is warm. To the urine to be preserved about one-fifth to one-third of its volume of the boracic solution is added, which enables the deposit to be collected before any decomposition sets in.

Mr. A. H. Mason has recently been making experiments upon the antiseptic power of hydronaphthol and finds it to be about fourteen times as strong as carbolic acid, and in fact, out of thirteen substances of this class only one, corrosive sublimate, was found to surpass it. He found that as an antiseptic hydronaphthol, when dissolved in ordinary water, was not more than half as powerful as corrosive sublimate when dissolved in distilled water, but under such circumstances as the surgeon meets with it is said to be more effective than sublimate. As a germicide he considers it to be at least as powerful as corrosive sublimate for anthrax and more so for bacillus subtilis, even when the latter was being used under conditions most advantageous to it.

An interesting communication has been made to *The Lancet* by Dr. A. H. Hassall, the salient point of which consists in the suggestion that all phthisical patients should be provided with spittoons containing perchloride of mercury solution for the reception of the sputa, whilst the use of cloths or handkerchiefs for this purpose should be discouraged.

Dr. Drysdale has had under his observation a case where a man who had previously been in robust health, and of a healthy family, married a woman in 1886 who had suffered from hæmoptysis three years before her marriage, and who died of phthisis pulmonalis. The husband had the first symptoms of the disease in 1887, a year after marriage, and is at present suffering from chronic phthisis. Dr. Drysdale contributes this case to the discussion now going on as to the part played by contagion in the spread of tuberculosis. Many statistical facts point in the direction of such contagion. Thus the disease is absent in Alpine districts, thinly inhabited by a healthy population, and it is most prevalent where people are most crowded in large houses with flats, as in Paris and Vienna.

At the General Infirmary, Leeds, the practice is commonly adopted of washing out the peritoneum after abdominal section, in which blood or other fluids have been effused. The fluid, whether simple warm water or boracic lotion, is usually poured into the wound from a jug, being introduced into the cavity by means of a glass funnel attached to a glass drainage tube by about 2 feet of rubber tubing. The drainage tube is introduced deep in the pelvis, by which means the water enters exactly where it is wanted and washes upwards and out of the abdominal wound all blood clots or effused fluids. The drainage tube is left *in situ* after by pressure removing as much of the fluid as possible.

Some recent statistics of sleep, though they may not prove anything of importance, are interesting. Students sleep longer and are less tired than other men. The time needed to fall asleep is about the same in all three classes—20.8 minutes for the men, 17.1 minutes for students, and 21.2 minutes for women. In each case, however, it takes longer for those who are frequent dreamers and light sleepers to fall asleep than persons of opposite characteristics.

Sir Morell Mackenzie has been presented with the freedom of the city of San Remo, richly illuminated and enclosed in an elegant casket, in recognition of his patronage of that city. This act of appreciation, suggested by Mr. Squire, of San Remo, was warmly responded to by the Mayor and the inhabitants.

Within the last few weeks thirteen patients from various parts of the country have been sent to Paris at the expense of the Lord Mayor's Fund for treatment at the Pasteur Institute. All are suffering from bites of dogs supposed to be rabid.

G. O. M.

IN JAPAN there are thirty-one schools of medicine.

DOMESTIC CORRESPONDENCE.

A Nosological Problem.

To the Editor:—Will you kindly publish the history of the following case, allowing me to ask through the columns of THE JOURNAL a solution of what seems to me an incomprehensible nosological problem.

Ethel J., aged 8, the daughter of healthy parents, has never had any lingering or serious illness; digestion fairly good, bowels very inactive, appetite good, though capricious, sleeps well, subject to quite frequent attacks of headache. On the evening of August 20, shortly after supper, was seized with an attack of nausea and vomiting. The ejected matter consisted of partially digested food and a membranous substance of an irregular shape, six inches in length by five inches in width. On one side here and there were little lumps of fatty matter the size of a small pea.

I have never in practice or in literature met with anything like it, and would be pleased to learn if any of the readers of THE JOURNAL have.

C. M. FERRO, M.D.

Tracy, Minn.

The New Official Register of Physicians.

To the Editor:—Will you have the kindness to notice in your columns for the benefit of your numerous subscribers in Illinois, that this State Board of Health has in preparation a new Official Register of Physicians and Midwives, and suggest that those who have changed their place of residence or removed to other towns since February, 1886, should notify the Secretary at Springfield of such change of address without delay.

JOHN H. RAUCH,
Secretary Illinois State Board of Health.

Springfield, Ill., Sept. 30, 1889.

Sanitary Condition of Los Angeles.

To the Editor:—In response to your editorial entitled "The Sanitary Condition of Los Angeles" (Sept. 28), pardon me for a statement of the facts. "The paragraph by a local paper" is simply claptrap, which grew out of a heated newspaper contest prior to the sewer bond election, as the figures will demonstrate.

Los Angeles, with a population of 80,000 inhabitants in 1888, had a death-rate of 8.50 per 1,000. The death-rate for the current year is 8.89 per 1,000 inhabitants per annum. These figures include "95 deaths from consumption from foreign states"[1] for last year, with even a larger proportion for the present year. These figures also include the deaths of the Los Angeles County Hospital (located in the city), which is no less than an interstate and international hospital as well. I voted for the bonds, but knowing the figures and the facts, I am constrained to say that the "gem of the Pacific coast" has, indeed, a clean sanitary "escutcheon."

Very respectfully,

J. H. DAVISSON, M.D.,
Member City Board of Health.

Bryson-Bonebrake Block, Los Angeles, Cal.

[1] Annual Report of Health Officer J. W. Reese, M.D., 1888.

BOOK REVIEWS.

TRANSACTIONS OF THE GYNÆCOLOGICAL SOCIETY OF BOSTON. NEW SERIES. Vol. I. Boston: Cupples and Hurd, 1889.

This is a handsome volume of nearly 400 pages, containing 29 excellent papers. A prefatory note states that the society, which was founded in 1869, has published seven volumes of its transactions covering the period between 1869 and 1872. The present volume contains papers read since 1879.

ANNUAL REPORT OF THE SUPERVISING SURGEON-GENERAL OF THE MARINE-HOSPITAL SERVICE OF THE UNITED STATES FOR THE FISCAL YEAR 1888; pp. 406.

A great deal of interest to the medical reader will be found in this report, which includes, among other matters, a description of the outbreak and management of the recent epidemic of yellow fever in Florida; observations on the natural history of epidemics of yellow fever by Passed Assistant Surgeon John Guitéras, M. H. S.; a report on the food of seamen coming into the port of Philadelphia, by Surgeon P. H. Bailhache, M. H. S.; a report relative to food issued to seamen on merchant vessels arriving at San Francisco, together with a report of scurvy treated during the seventeen years ending June, 1888, by Surgeon H. W. Sawtelle, M. H. S.; selected reports of special operations by various surgeons of the service; reports of a large number of fatal cases, with necropsies. Much credit is due the Surgeon-General, Dr. J. B. Hamilton, for the excellent manner in which his report is presented.

LECTURE ON BRIGHT'S DISEASE. BY ROBERT SAUNDBY, M.D., Edin.; F.R.S.P., Lon.; Emer. Sen. Pres. Royal Med. Soc.; Physician to the Birmingham (Eng.) Gen. Hosp., etc., etc., etc. With fifty illustrations. New York: E. B. Treat, 771 Broadway; 1889; pp. vi, 290.

In this attractive volume the writer has set forth, in a lucid and readable form, the results of thirteen years' clinical and pathological study of Bright's Disease. The reader cannot fail to be pleased, entertained and instructed by its perusal, for it is one of those books that are "easy to read," while replete with information. It is

thoroughly practical and admirably suited to the needs of the practitioner. The various chemical and microscopical tests for the detection of the disease are well described, and the classical descriptions of the various clinical features of disease are admirably illustrated by short selected reports of the author's cases. The work is divided into three sections, with subdivisions of chapters as follows:

Section 1.—General Pathology:
Chapter I. Albuminuria.
" II. Pathology of Dropsy.
" III. Pathological Relations of Tube Casts.
" IV. Cardio-Vascular Changes.
" V. Pathology of Polyuria.
" VI. Pathology of Uræmia.
" VII. Retinal Changes.
Section 2.—Clinical Examination of the Urine:
Chapter IX. History--Classification--Etiology.
" X. General Anatomy of the Kidney.
" XI. Febrile Nephritis.
" XII. Lithæmic Nephritis.
" XIII. Obstructive Nephritis.
" XIV. Complications.
" XV. Treatment of Lithæmic Nephritis.

Books of this description do not gather very much dust on the shelves of the general practitioner.

MISCELLANY.

HEALTH IN MICHIGAN.—For the month of September, 1889, compared with the preceding month, the reports indicate that typho-malarial fever, whooping-cough, typhoid fever (enteric) and diphtheria increased, and that cholera morbus, erysipelas and inflammation of bowels decreased in prevalence.

Compared with the preceding month, the temperature in the month of September, 1889, was lower, the absolute and relative humidity were about the same, the day ozone was less, and the night ozone was slightly more.

Compared with the average for the month of September in the three years, 1886–88, cholera infantum, inflammation of kidney, whooping-cough and cerebro-spinal meningitis were more prevalent, and influenza, diphtheria, puerperal fever and scarlet fever were less prevalent in September, 1889.

For the month of September 1889, compared with the average of corresponding month in the three years 1886–'88, the temperature was slightly lower, the absolute and relative humidity were about the same, the day ozone was less, and the night ozone was more,

Including reports by regular observers and others, diphtheria was reported present in Michigan in the month of September, 1889, at 34 places, scarlet fever at 20 places, typhoid fever at 47 places, and measles at 7 places.

Reports from all sources show diphtheria reported in 13 places more, scarlet fever at 2 places more, typhoid fever at 7 places more, in the month of September, 1889, than in the preceding month.

The bulletin "Health in Michigan," heretofore issued by the Secretary of the State Board of Health have mentioned the increase and decrease of those diseases in which a difference of seven or more was shown between the per cents of reports, stating the presence of the disease in the current week or month and in the preceding week or month, or in the corresponding month in previous years.

Hereafter those diseases will be mentioned of which the comparison shows an increase or decrease of 25 per cent. from the preceding week or month, or from the normal, as the case may be.

The new method has the effect of calling attention to changes in the prevalence of diseases, which like diphtheria and scarlet fever are important, yet which are not usually reported by a very large number of observers, and, therefore, under the old plan would not be mentioned.

LETTERS RECEIVED.

Dr. George Purviance, Philadelphia; Dr. A. G. Root, Albany, N. Y.; Dr. Didama, Syracuse, N. Y.; Dr. W. K. Sutherlin, Mansfield, O.; Dr. S. F. Illick, Detroit, Mich.; Dr. S. T. Armstrong, New York; J. Astier, Paris, France; Dr. Greenley, West Point, Ky.; J. H. Chambers & Co., St. Louis, Mo.; Dr. J. W. Carhart, Lampasas, Tex.; Cadogan N. Hatcher, Quincy, Ill.; *Detroit Free Press*, Detroit, Mich.; Dr. J. Lucius Gray, Chicago; Dr. E. R. Fletcher, St. Paul, Minn.; Dr. A. E. Prince, Jacksonville, Ill.; Longmans, Green & Co., New York; Dr. Perry H. Millard, St. Paul, Minn.; C. W. Bennett, Quincy, Mich.; Dr. E. S. King, York-Institute, N. C.; Dr. Maris Gibson, Wilkesbarre, Pa.; R. G. Dun & Co., Chicago; Dr. Chas. F. Disen, Minneapolis, Minn.; Rio Chemical Co., St. Louis, Mo.; Medical and Surgical Sanitarium, Battle Creek, Mich.; Fairchild Bros. & Foster, New York; Dr. C. B. Powell, Albia, Ia.; The Marlin Fire Arms Co., New Haven, Conn.; Sharpe & Smith, Chicago; Dr. W. C. Eustis, Farmington, Minn.; Wm. P. Cleary, New York; Dr. F. D. Green, Richmond, Ind.; Dr. A. Vander Veer, Albany, N. Y.; Street & Co., London, Eng.; Sharpe & Dohme, Baltimore, Md.; Dr. Henry O. Marcy, Boston; Dr. A. B. Judson, New York; Thomas Gardiner, Coronado, Cal.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from September 28, 1889, to October 4, 1889.

Major Benjamin F. Pope, Surgeon, leave of absence granted in S. O. 54, Dept. Texas, August 17, 1889, is extended one month, by direction of the Secretary of War. Par. 6, S. O. 224, September 26, 1889.

Capt. and Asst. Surgeon George W. Adair, granted leave of absence for one month. S. O. 90, Hdqrs. Dept. of the Platte, September 25, 1889.

Capt. Alonzo R. Chapin, Asst. Surgeon, is granted leave of absence for fourteen days, with the approval of the Secretary of War. Par. 10, S. O. 223, A. G. O., September 25, 1889.

Asst. Surgeon Jefferson D. Poindexter, U. S. Army, granted leave of absence for one month. S. O. 113, Hdqrs. Dept. of Dak., September 30, 1889.

Official List of Changes in the Medical Corps of the U. S. Navy for the Week Ending October 5, 1889.

Surgeon Geo. E. H. Harmon, detached from the U. S. S. "Constellation" and ordered to Naval Academy.

Asst. Surgeon C. H. T. Lownes, detached from the U. S. S. "Constellation" and to Naval Academy.

Surgeon George F. Winslow, ordered to Marine Rendezvous, Boston.

Asst. Surgeon Chas. P. Henry, ordered before the Retiring Board for examination.